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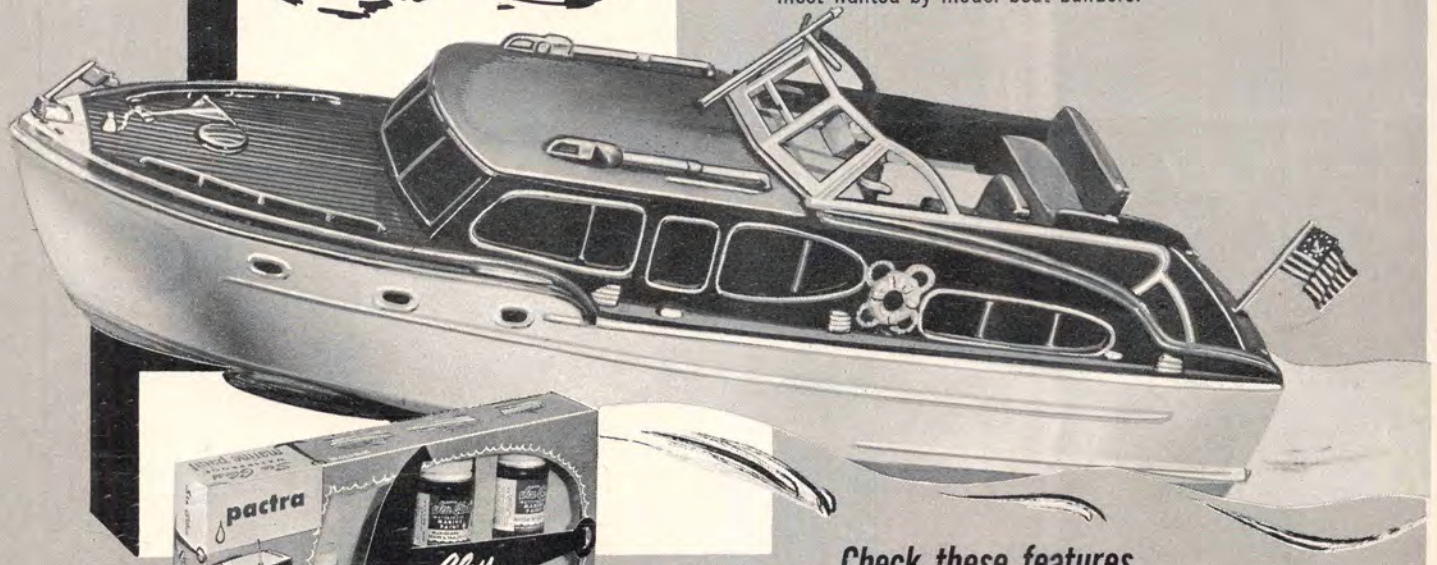
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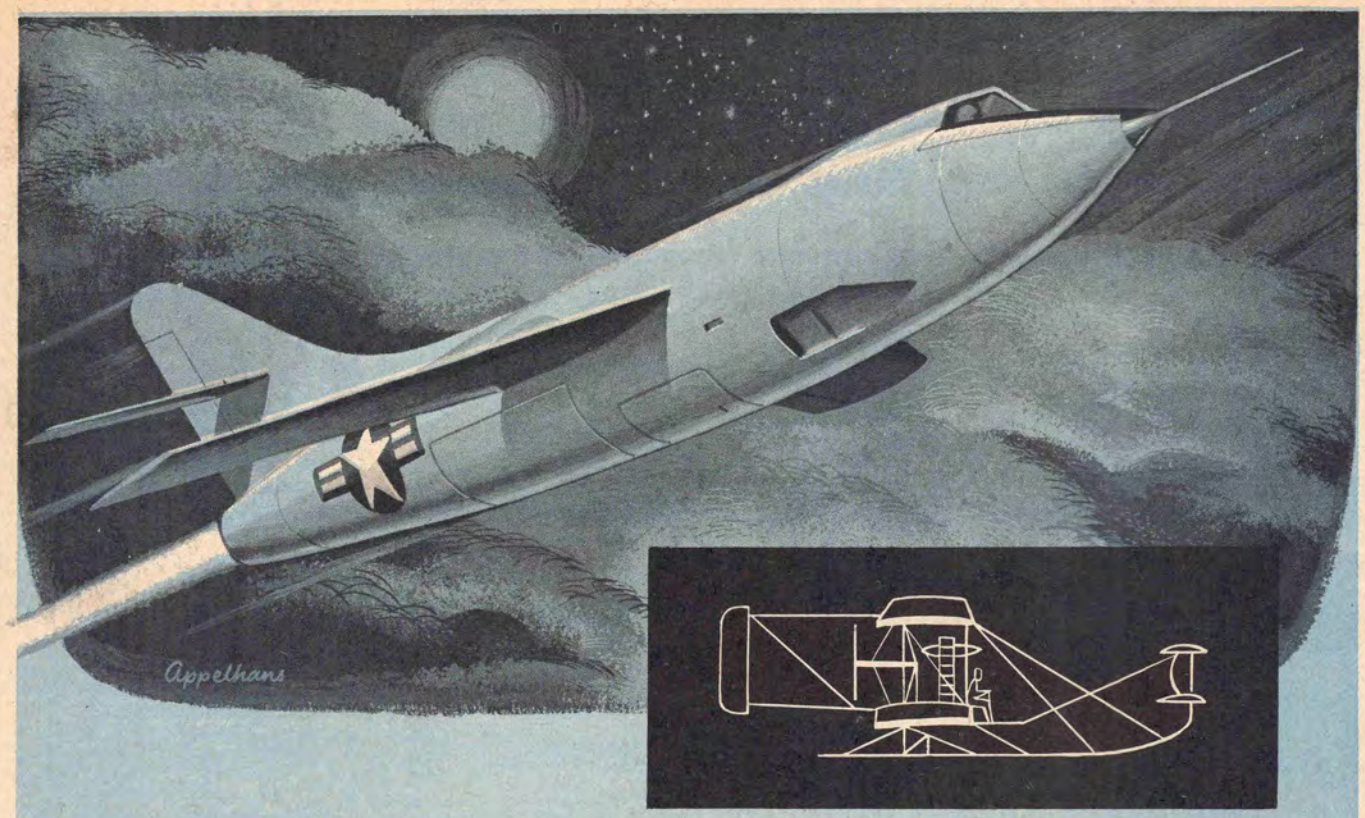
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You'd be pretty surprised too if you surfaced amid this miniature fleet. Most of these types you probably recognize, but to ward off numerous queries we hasten to say (1) that craft in upper left is a Menhaden fishing boat and (2) Cal Smith, the cover artist, is working up a 5/16" to the foot R/C or free running model for us.

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HOBBIES for YOUNG MEN

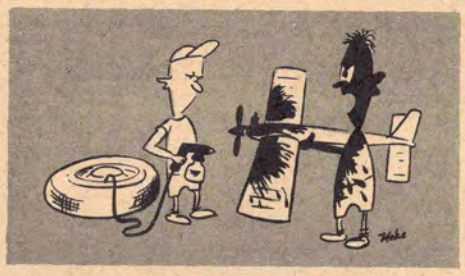
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Ever try to fly U-control with a dead engine? The New England flyers say it's a cinch . . . see pg. 48.



"How about letting me spray awhile?" (See page 40)



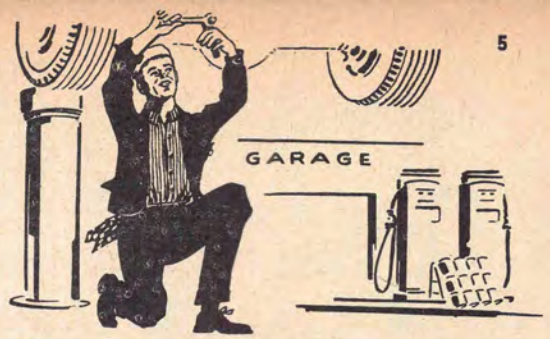
Some lucky fellows can combine summer camping AND model making. See interesting report on pages 6, 8.

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One of the big advantages of model building in camp is the close association between the camper and the instructor. Boys sign up for camp for 4 to 8 weeks. This means they are around long enough to build a model, learn to run their engine and then learn to fly. They meet their craft counsellor in the shop and in other activities. Failures are few.

"MODEL MINDED" SUMMER CAMP

The Michigan YMCA model building program at Nissokone includes flight progress awards

■ Going away to camp for the summer might put some model builders out of business for a couple of months, but not those fortunate fellows who attend Camp Nissokone located near Oscoda, Michigan. These campers pack up their models and supplies and take them along.

Since model airplane and model boat building were introduced to the camp's Craft Shop program four years ago, the number of boys who work away in the Craft Shop has more than doubled. Last summer 140 out of the 160 boys in camp participated, with model airplane building being the most popular activity.

"Camp has proved to be an ideal place for model building," reports Douglas Salisbury, Camp Director. "The Craft Shop provides a good place to build midels, the lake is located



Swamp Buggies and Aqua-Skimmers prove popular air boats. Half-A engine powered craft are in the majority. Camp is only 3 miles from ASAF's Wurtsmith air base.

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O&R 60 Sideport Engine with 6 matching 45¢ props (O&R). Choice of Ignition or Glo	16.50	9.95
O&R glo plugs for ½A eng. Special, 4 for $1.00	.65	.29
Babcock U-C reel, 6" hard maple w/knobs, guide wires, etc.	1.00	.49
½A engine starter. Pulley type for eng. to .099		.15
Imported Elec. Motor, ready to run		.89
High grade propellers. Testor's reg. 35¢ to 50¢ each. 8" in 10, 12p; 9" in 10, 12p; 10" in 8, 10p; 11" in 6, 10p		8 for 1.00
U-C Wire 012 x 2 - 52'	.50	.29
Plan-Pak, 15 different solids, detailed		1.00
Plastic parts boxes with hinged tops, 1¾ x 2¼ x ¾" high	.15	6/.50
DOPE BRUSHES. Fine quality. 20 assorted	3.00	1.00
Souvenir "junk" engines. With broken parts, etc. Sold As-R without guarantee, for your den or desk. 3 for $2.00		.75
Bill Winter's "Model Aicraft Plan Book"	1.00	.50
8 asstd. solid color Trim Film	2.00	.98
Accessory Kit with foil paper, brush, decal insignia, camouflage colors, sandpaper, scribe-marker decals, etc., etc.	1.00	.39
Leather finger guards for engine starting	.25	.15
½A U-Control Wire—35 feet on reel	.35	.20
½A Neoprene. Best Quality. 10 Feet	1.50	.50

Planes, Speedboats, etc.	Reg.	SALE
"Royal Skimmer" speedboat, 13" assembled & painted with fuel proof dope. For ½A engines or electric motors	$5.95	$1.50
U-Control "Junior 9"	3.48	1.75
U-C Stanzel "Tiger U-Shark" Class C	4.95	2.98
Free Flight "Diamond Demon"—48" B	2.95	1.80
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SUMMER CAMP





These Junior campers (above) turn out for a Sunday afternoon glider contest on Nissokone's athletic field. Note Northern Michigan pines in background. In Craft Shop youthful plane fans finish models for an exhibit put on during "Dad's Weekend." Each season about 35 win their "wings" (feather badges). Expert modelers run program.

just outside the door to test boats, while the tennis courts and athletic field are available to fly model airplanes."

Each summer finds more and more young fellows bringing their models to camp. Sometimes it is a kit that someone never could get around to build or a motor that would never seem to run right. At other times it is a plane almost finished with just a few bugs to be worked out before it is ready for a test hop. Other boys see how much fun the model builders have and join up, getting their supplies from the well-equipped store that is part of the Craft Shop.

Model building is a regular part of the camp program. Boys who are interested sign up for three scheduled classes a week. This isn't enough for most fellows, though, so they return during the evening when the shop is open for free time activity. Supervised U-control flying is scheduled three evenings a week on the athletic field or tennis court. Power boats are usually run after supper on the lake which flattens out like a mirror at that time of day.—*Fred Schelter*



Campers waiting to board bus for home are loaded down with models. One delightful feature of camp modeling: there are no neighbors to complain about the noise!

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our insignia shirts have been worn and respected by winners. Here is how to obtain them at a give-away price.

$1.85 Checkered Flag Pennant, or Scotch Light Bumper Sign ..... 2 caps and 35¢
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FREE shirts to qualified Record Holders and National Champions.

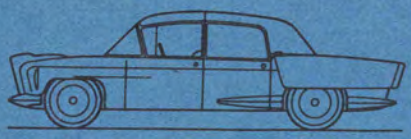
Items listed above are subject to change without notice, and redemption is subject to state laws governing premium deals.

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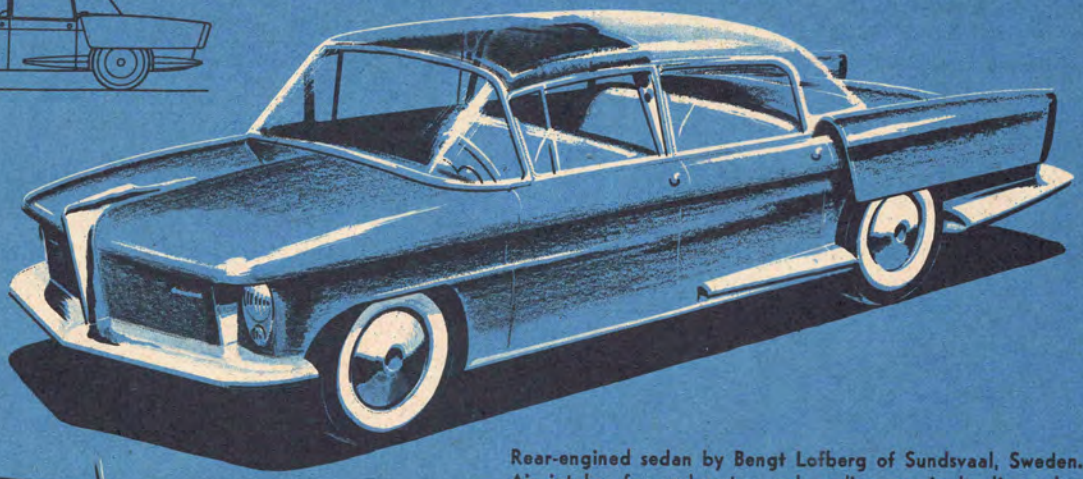
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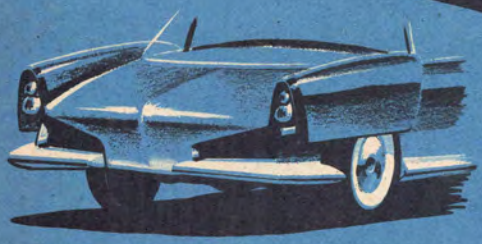
AUTO DESIGN COMPETITION



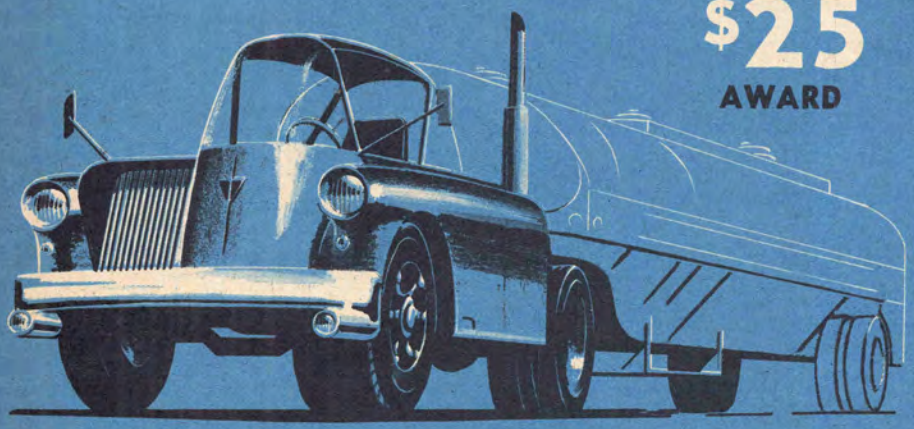
FIRST $50 AWARD

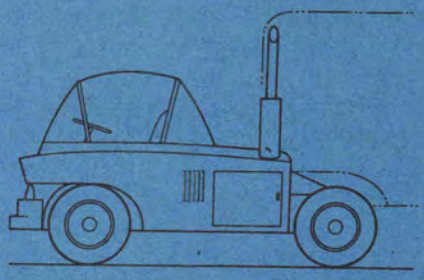


Rear-engined sedan by Bengt Lofberg of Sundsvaal, Sweden. Air intakes for carburetor and cooling are in leading edge of rear fenders. Back window and aft section of top are of double plastic with space between into which dark liquid can be pumped to prevent headlight dazzle from car behind.



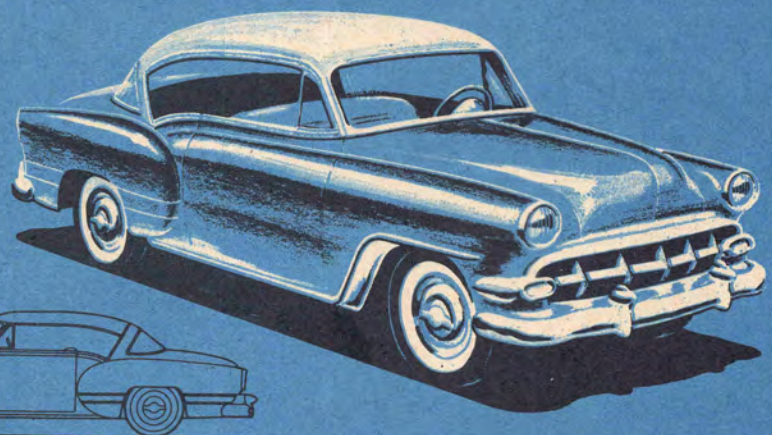
SECOND $25 AWARD





Modern tractor truck by J. Beck of Cicero, Ill. Engine, a 250 hp diesel, is located on the right side, thus eliminating the long hood in front of driver and giving excellent forward visibility. Air-conditioned cabin is of transparent plastic, with tinted roof.

THIRD $10 AWARD



Customized 1954 Chevrolet by C. W. Blanke of Glendale, Calif. Body has been restyled for more delicate appearance. Door center-posts removed, rear fenders have square, deep cutouts, waist body line dips toward the rear.

It's easy to enter— All types are eligible: restyled passenger cars, original sport jobs, hot rods, or military types.

AWARDS OF $50.00—$25.00—$10.00 EVERY ISSUE

Cash awards will be made each issue for the three most significant auto designs submitted to this magazine. $50 will go to the top design, $25 to the second and $10 to the third. You may submit sketches for an original design auto, for a restyled car, for sportscar, family sedans, record cars, hot rods, military vehicles or unusual trucks. Include side, front, rear and top drawings, plus sketches of the proposed vehicle from three-quarter front and three-quarter rear positions. Sorry, we cannot enter into any correspondence about this contest. Send entries to Auto Design, c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y.

The Readers Write

Let's hear from you! Address all letters to Air Trails HOBBIES For Young Men, 304 East 45th Street, New York 17, N. Y.

Correction for PAA-Load Rule: . . . In the terrific heat generated by revising, toughening, relaxing, toughening again, rewriting, editing, typesetting and proofreading the new 1955 rules for PAA-Load Event, we let one inconsistency slip through, and if you could help spread the word it would help all judges in the field this summer who might get questions from contestants. A paragraph along the following lines would do it:

PAA calls attention to an inconsistency in the 1955 PAA-Load Rules Book. The sketch of America Class dummy pilot indicated weight of 5 ozs. This is an error. Weight of America Class dummy pilot is 4 ozs. as specified in the text of rules.

But note that the total payload required in America Class *is* 5 ozs., consisting of a 4 oz. dummy plus an ounce of cargo. For International Class the required payload is an 8 oz. dummy (correctly shown in the diagram in the rules book) plus 8 ozs. of cargo.

George Gardner, Educational Director, Pan American World Airways System

Auto Design Winner . . . I would like to thank you very much for your acknowledgment and rating of my automobile design. I was really surprised and overjoyed when I received notice in the mail. The money and the acknowledgment in the magazine will help me very much on entering Art Center School in the fall.

John Jaquish, Grosse Pointe, Mich.

Today's Youth Salutes Seversky . . . I just received your April Air Trails Hobbies and like very much your plans for the Seversky P-35. I wish that you would keep on printing three-view plans and particularly the cutaway view. I would like to see some plans for World War II and pre-war planes. I also liked the plans for the Lamson.

Ben Harriss, Pittsburgh, Pa.

Mr. Seversky Returns Salute . . . Thanks very much for sending me a copy of your magazine, Hobbies. It was most interesting and even nostalgic to see that my good old P-35 is still of interest to our air-minded youth.

Alexander P. de Seversky, New York, N. Y.

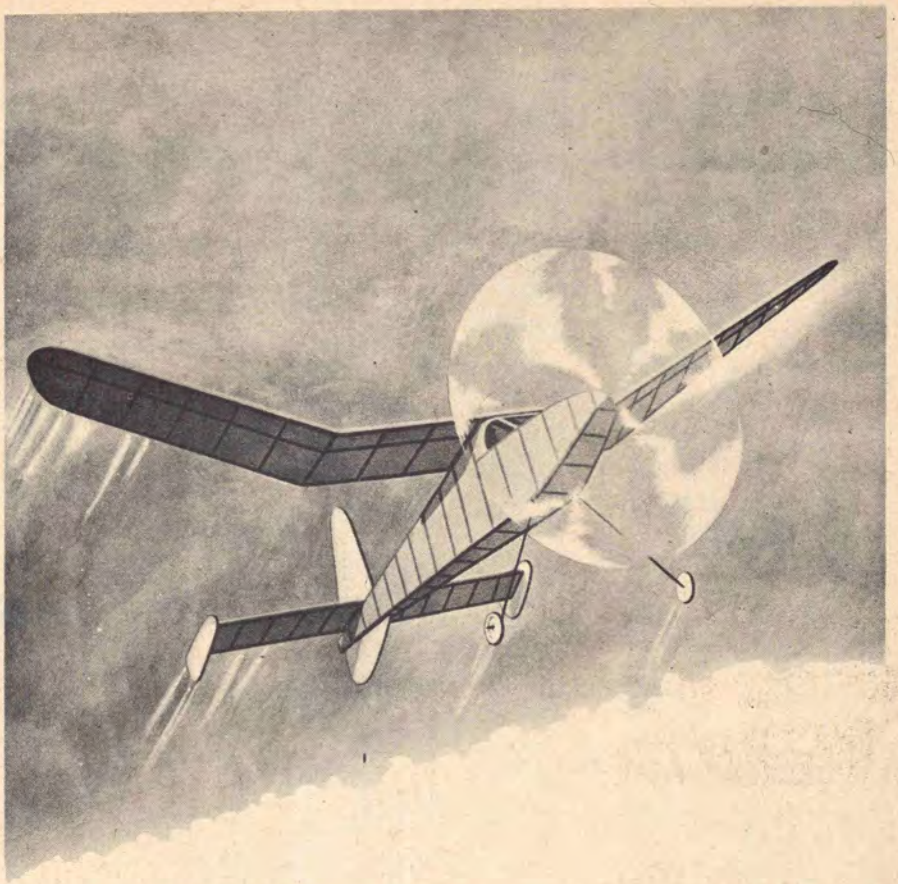
Ceramic Engineering . . . Will you please send me a copy of the April issue of Air Trails Hobbies For Young Men"? I was very much interested in the article "Broad New Horizons Open Up For The Ceramic Engineer" appearing in that issue and am wondering if it would be possible to obtain reprints of this paper. . . . The urgent need for ceramic engineers by industry is a very serious problem, yet the number of students enrolled in the colleges of the country in this area is very low. . . .

(Prof.) A. I. Andrews, Head of Dept. of Ceramic Engineering, U. of Ill.

. . . You have no idea of how much we at Iowa State College appreciate your cooperation by making available to high school students the two very well done articles on Ceramic Engineering. You have handled a subject difficult to present in an exceedingly attractive manner and I know that the other schools, besides Iowa State College, that have cooperated with you are just as grateful as we are. The Ceramic Engineering profession has needed your type of cooperation for a long time. . . .

(Prof.) C. M. Dodd, Head of Dept. of Ceramic Engineering, Iowa State College

(Continued on page 17)



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or FAME...
fly low-cost
rubber-powered planes
wound with

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SUPER-COMPOUND

ESCAPEMENT

for *all* R C model planes and boats, *regardless of size.*



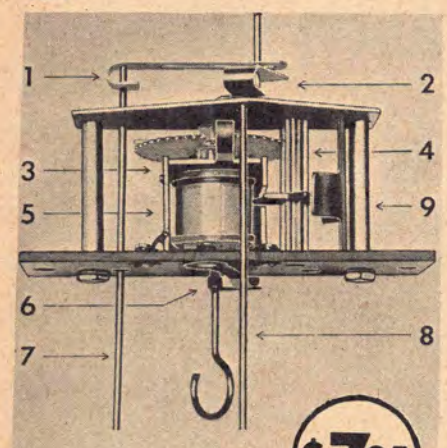
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MOST EFFICIENT • *Lowest Price!*

Weight ¾ oz. • Width 2⅜ in.

Exclusive features:

- Handles both ¼" rubber for large models and ⅛" rubber for ½A jobs—ample power for *any* rudder application.
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- Cuts escapement battery weight in *half, doubles* battery life. Uses one pen cell.
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- Finest precision custom-quality, designed and made with typical Babcock skill!



ALL THIS FOR ONLY $7.95

(1) Rudder linkage and (2) Elevator linkage, both furnished. (3) High efficiency coaxial magnetic circuit. (4) Speed control pinion, most efficient lightweight control. (5) Mechanism mounted between plates for protection. (6) Positionable secondary escapement switch. (7) Rudder torque rod. (8) Elevator torque rod. (9) Rust-and-corrosion-proof parts for long-life performance.

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EVERYTHING UNDER CONTROL



News, Views, and Comment on Radio Control Activity and Equipment as reported by Howard McEntee, W2SI

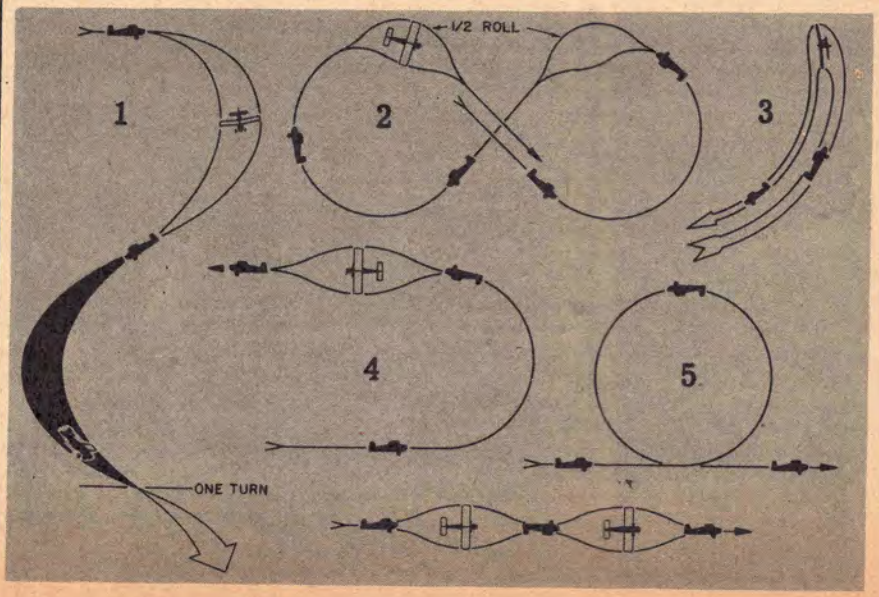
The cold weather crop of new planes is coming to light and an unusual job by Norm Davis (R.F.D. #2, Dansville, N. Y.) is shown here. Norm is a biplane and diesel engine enthusiast, and has combined both of his favorites in "June Bug IV", which spans 48", with 550 sq. in. area. The flying weight is 62 oz.; power a Viking diesel. Ship is Nylon-covered in yellow with black The wings have an aspect ratio of 7-1, and wing chord-gap ratio of 1½-1. Control equipment starts with a Lorenz receiver, followed by Fenners-Pike proportional actuator, and a flyball actuator to give engine 2-speed.

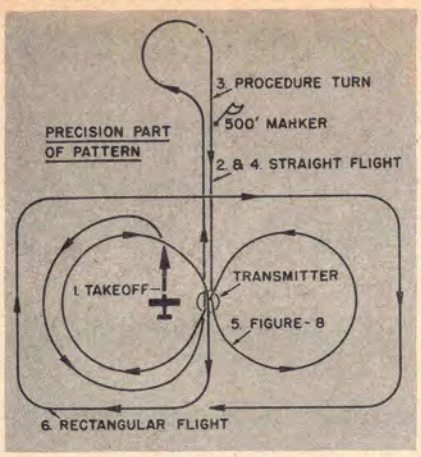
The engine flyball unit is homemade, using a Mighty Midget motor running on 4½ V. Norm says it will drag a 4 oz. lead weight along the table top! The Danish engine is fitted with a throttle made by Pete Bliss, designed along the lines of the throttle fitted to the Mills 1.3 diesel. No flight reports on this plane as yet, but we hope it's as successful as some of Norm's other bipes we have seen in operation.

Those diagrams you see are from the new A.M.A. Radio Control Flight Regulations which have been put into effect by the R/C Committee and the Contest Board. The pattern diagram replaces that of last year. You must fly these six maneuvers in sequence and exactly as shown in the diagram (that's what the man says!). To aid judges and contestants who have no control line stunt or full scale aircraft flight experience the R/C section for the first time illustrates various maneuvers: 1) spiral dive; 2) Cuban eight; 3) wing-over; 4) Immelman turn; 5) inside loop; 6) horizontal roll.

These diagrams were drawn by Cal Smith; they are being donated to the A.M.A. by ATH.

New R/C clubs have been formed in Chicago and lower New York State—





at least they are new to us. The Illinois group is called the "Radio Control Club of Chicago," and Secretary is Jerome Johnston (10805 S. Sangamon St., Chicago 43). Club was formed about a year ago, and had a good 1954 season, holding two club meets during the year. There are 25 members now, and while all hands flew rudder-only in '54, five multi-channel rigs are on the way. Meetings are held every two weeks, and include radio classes, movies, business sessions, etc. Big season is planned with five club meets on the schedule; first one for May 8, and there'll be another each 5th Sunday thereafter.

Flying site is at the County Forest Preserve. To handle heavy 27¼ mc. "traffic", they use a metal tag with 27 painted on it; anyone who wants to fly or test *must* have this tag, and it is passed along in same order as members sign up when they arrive to fly.

Westchester (N.Y.) Radio Control Club has 25 members and own club room. Officers for 1955 are: Pres. — John Breitenbach; V. P. — Frank Fetzer; Sec.-Treas. — Max Pruner. John says they are looking for more members, and anyone interested should contact him at 76 Barnes Rd., Tarrytown, New York.

News of R/C clubs in Dayton area comes from Jack Port (368 E. Whittier Ave., Fairborn, O.) who notes that the largest club in vicinity is the Springfield Strato Hawks: about half of the 40 members are involved in R/C, and radio flying is done at Grable Airport on outskirts of Springfield. Weekend R/C flying sometimes gets pretty hectic, but a different club member is appointed each week to run the show, and flying sequence is handled via a P.A. system, or by lung power and flags. Flag is placed next to member who has the air and all others are expected to keep their transmitters off.

Another group, this one for R/C only, was established several years ago, and so far is rather informal, with no name or official club setup. Meetings are held at members' homes, and they fly at the State Farm on outskirts of Dayton. Contact Jack for more details of both outfits.

R/C "Convention" held by Radio Control Club of Detroit was a huge success. In addition to about 300 RCCD members, there were 71 men from out of town, which was considered exceptional, since weather was awful, with icy roads all over the area. Program included discussion of new AMA R/C rules, news of coming contests, lots of fine R/C movies, demonstrations of new

(Continued on page 67)

NEW MODEL RR-5 RECEIVER



Dependable 5-Channel resonant reed receiver. Engineered for simple tuning, low current drain and high sensitivity, weighs 8½ oz., size 4⅛x2⅞x1½ inches. Complete, fully assembled in attractive grey hammertone case.

Price..... only $109.50



NEW MODEL TR-5 TRANSMITTER

Powerful—5-Channel tone modulated transmitter engineered for high output, stability, and requires no tuning. Weighs 4½ lbs., size 3x5x10 inches. Complete, fully assembled in grey hammertone case. Price.....only $79.50 less batteries.

TI-5 Installation Kit—contains necessary components to hook up receiver and servos. Price.....$3.50

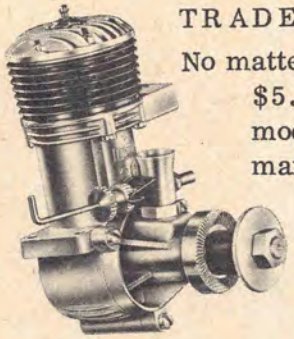
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F8F Bearcat	$2.75	P-51 Mustang	$2.75
F4U Corsair	2.75	F9F Panther	2.75
F9F Cougar	2.75	F-86 Sabrejet	2.75
FW-190 Focke Wulf	2.75	F-80 Shooting Star	2.75
F6F Heilcat	2.75	British Spitfire	2.75
P-38 Lightning	3.50	P-47 Thunderbolt	2.95
ME-109 Messerschmitt	2.75	F-84 Thunderjet	2.75
MIG-15	2.75	F-82 Twin Mustang	3.50
P-40 Warhawk	2.75		

17' INBOARD CHRIS-CRAFT SPORTSMAN $4.95



One inch scale. Here is a flashy, fast and rugged inboard, super de luxe in appointments. Easy to build, with **completely carved hull**, die cut mahogany deck and plastic windshield. **26 beautiful metal fittings:** windshield brackets, steering wheel, clutch handle, stern light, boat hook, fire extinguisher, propeller shaft, stuffing box, step plates, hoisting rings and working anchor. All you need is your engine and fly wheel.

LAYTON SKIFF $1.95



Here is a big, inexpensive skiff designed for the electric or 1/2 A engines, easy to assemble, complete to the oars. Length 17", Beam 7", Freeboard 3" Die cut Balsa construction. **Eleven metal fittings** including oar lock sockets, oar locks, cleats, chocks, anchor and fire extinguisher.

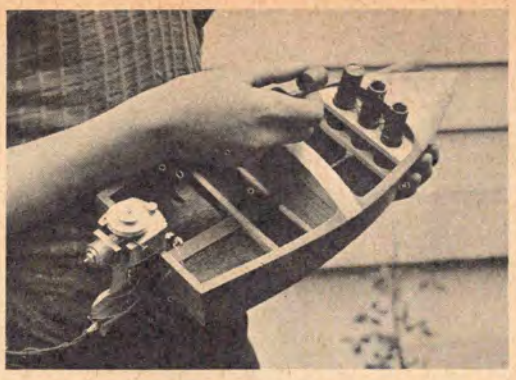
OUTBOARD RUNABOUT $3.95

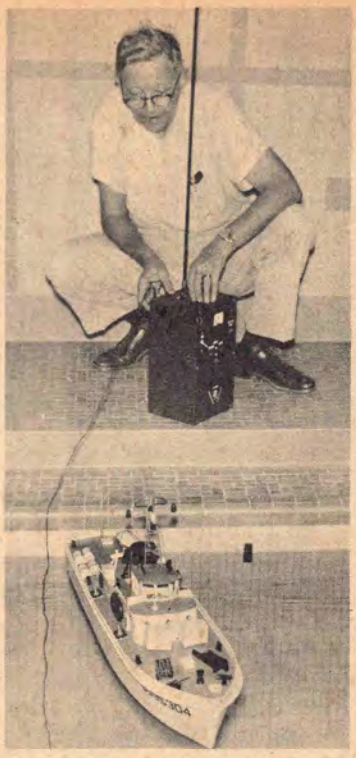


16 Foot DeLuxe Outboard Runabout designed expressly for the new 1/2 A outboard engines! 16 inches by 6, **fully carved and shaped.** No other scale kit has ever been so easy to put together, SO PERFECT IN OPERATION. Detail Galore . . . Chocks, cleats, bow and stern running lights, boat hook, oar locks, fire extinguisher, working navy anchor—15 beautiful metal castings of the kind Dynamodel is famous for.

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MODEL BOATING

Sail and scale; electric, gas, steam or glow plug power; free running or radio control — we cover all kinds in this column

■ At top, right, is Sam Babl of Baltimore with his radio-controlled Coast Guard Cutter which he's operating in a YMCA pool. Wire to water from transmitter is for good ground effect.

Fall-out ballast protects model boat, according to Chip Rowsome of Chappaqua, N. Y. Photo above tells the story together with this report from Chip:

"When I purchased my first glow-plug outboard, the only hull then available was a little 14-incher that was originally designed for an electric outboard. It had good lines and enough buoyancy—but it obviously needed so much nose weight for high-speed planing that I was afraid it might sink if it flipped over. And any ordinary metal nose weight that is put in loosely enough to unload after capsizing is likely to shift position during a fast run, with disastrous results.

"The solution, shown in the photograph, works fine. Three uncapped cylinders of BB's, mounted as far forward as possible, do the trick. Adding or subtracting a teaspoonful of BB's from each cylinder permits precise adjustment of balance. If the craft does flip at high speed, all that's lost is a few cents' worth of those little BB shot.

"I hold the cylinders in holes in two balsa crosspieces, winding a rubber band around to retain them. It's best, of course, to keep the cylinders capped except during a run. In the boat shown, the best trim results when each cylinder is filled to about ¾ in. from the top. This makes the boat a little down at the bow at rest, but when the engine —an Allyn Sea Fury—is leaned out, she lays back her ears and really scoots."

Development of the Half-A outboard engine has given a great impetus to model power boating; these tiny but potent engines eliminate stuffing boxes, motor mounts, alignment of prop shaft with engine etc., and make it possible for many modelers to engage in power boating who otherwise would not be tempted to try it.

To exploit the possibilities of this class of boat several Indiana organizations combined resources to run a series of outboard races (see photo bottom of this page, during a 10-day Sport and Boat Show at the Indiana State Fair Coliseum; included were the Indianapolis Model Power Boat Club, Central



Indiana Boat Club, and "The Toy Wagon," enterprising Indianapolis hobby dealer.

At first the intention was just to run the baby outboards in the tank used for aquatic events at the Show, this water area being about 60 ft. long. It was felt, though, that actual races between several boats would be a lot more fun for both the modelers and spectators than just running single boats in a tether circle, and various schemes to guide the craft in a straight line for the length of the pool were tried out. One that worked well was the use of .030 music wire guide lines, each boat being fitted with an A-frame to engage the wire; at least it worked to guide the boats, but it slowed them up a lot.

While this experimental work was under way, some of the enterprising modelers tried to "free flight" their models the length of the pool, and found this method of operation entirely practical. Improper balance caused many of the craft to flip, but this was soon cleared up. The first "official" race consisted of two heats of about six boats each. This race was run off in the short time of 3½ minutes, incidentally, the Show management having some misgivings as to the drawing power of the tiny racers.

As things developed, the races were a sensation, and as many as ten boats were often in the water at once. Due to the short time, however, there was a complete ban on any engine running except in the actual races, and a starter consisting of a vertical quarter-horsepower electric motor with a 6" scooter wheel mounted on the edge of the shaft was provided by The Toy Wagon; it proved to be invaluable. The wheel was set just high enough above the mounting box top so that with the skeg of Sea Fury engines on the box, the flywheel would make contact with the rubber tire. A similar starter of opposite rotation was required for Atwood outboards. Power leads for glow plugs came out from each side of the starter box; to insure reliability, transformers were used to heat the plugs, putting out about 1.4 V. A.C., which dropped to about 1.1 V. on load.

Early heats were dominated by the all-plastic Sea Darts, which seemed to run "right out of the box," but as experience was gained, the more complex built-up boats took over the lead. Ultimate winner of a beautiful gold trophy donated by Central Indiana Boat Club was George Eshelman with a Scientific Torpedo.

Other groups who would like to learn more details of this sort of racing might like to contact Al Gasdia of Allyn Sales Co. Inc. (6425 McKinley Ave., Los Angeles 1, Calif.), who sent us this data.

While on subject of outboard racing, we should point out that the Third Annual Outboard Marathon will be held on the Mississippi River July 1. Needless to say, this is for the big outboards, and it is a 1050-mile race from New Orleans to Alton, Ill., over the same course followed by the famed old sternwheelers—the Natchez and the Robert E. Lee. The steamers had their first race over 85 years ago and the Robert E. Lee was winner with a time of 90 hours and 14 minutes; their course was 1218 miles in length, but since that time the river channels have been shortened by almost 200 miles. Present record for the shortened course between New Orlans and Alton is 63 hours flat. More

(Continued on page 72)

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4.95
AT YOUR DEALER.
BY MAIL ADD 30C.

ESQUIRE
Length — 18 in.
Beam — 6 in.

They're unbelievably beautiful! — this glamorous new group of models — designed and COMPLETELY PRE-FABRICATED in typical MONARCH style. Smoothly shaped two-piece balsa hull, hardwood keel, mahogany decking, and ALL fittings. Nothing extra to buy (except motor). For sheer eye appeal, performance, ease of assembly, and outstanding value, nothing compares with these superb new craft by MONARCH. See them at your dealer.

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NOMAD — 3.95
(18 inch outboard)
BOBO — 2.95
(15 inch inboard)

Length — 15 in.
Beam — 5 in
"QT"



2.50
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MONARCH MODEL AIRCRAFT CO. Inc. Brooklyn 33, New York

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RECEIVER TUBE "IDLES" WHILE RELAY REMAINS IN UNENERGIZED STATE. (saving tube and battery)

TUBE CURRENT INCREASES and RELAY BECOMES ENERGIZED ONLY WHEN TRANSMITTER IS KEYED

SHOULD RECEIVER or TRANSMITTER FAIL WHILE IN USE MODEL COMES IN RATHER THAN FLYING OUT OF SIGHT (This new type of "Fail Safe" operation fully explained in our instructions)

Full Re-Designed "CUSTOM RECEIVER" weight under 3 ounces including 10,000 ohm relay (relay included) plus Silver Ceramic Trimmer, midget resistor & condensors, Nylon Coat Coil wire etc. in kit. Uses one X F G I tube which IDLES while relay not energized saving tubes life, batteries etc. "CUSTOM TRANSMITTER" 27 M C Exam Free Band kit with pre drilled base etc. Transmitter Box only 4½"x3¾" (Box Included) may be hand held or placed on Field, Properly constructed has 1 mile or more range. Full drawings and instructions included. Parts for "CUSTOM ACTUATOR" furnished. Magnetic Principal, uses battery supply alone, no rubber power used. Operates both rudder and elevators or rudder alone for Aircraft Boats or Cars, weight under ¾ ounce. Less tubes, batteries, keying lead, antenna, receiver var. resistor, crystal.

"CUSTOM MIDGET" RECEIVER TRANSMITTER and ACTUATOR..... $9.98 ☐

Also Available "STANDARD MIDGET I" Radio kit, this group of 3 units, same design as above, same Relay, Same type Transmitter and Actuator, The difference from above is the Receiver weight which is greater (slightly over 4 ounces) Heavier components used.

"STANDARD MIDGET I" RECEIVER TRANSMITTER and ACTUATOR..... $6.98 ☐

PLANS FOR THE "CUSTOM MIDGET" all three units... 50c ☐

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MODELLERS ORDER DIRECT

"SPECIAL 10 FOOT TRANSMITTER AERIAL"...$1.00 ☐

X F G I tube	$3.50 ☐	0 to 3 Milliammeter	$3.50 ☐	Soldering Iron	$2.98 ☐
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Model Car News



Miniature speedsters, scale autos, remote and radio control vehicles—you name it, we got it!

■ Miniature car racing seems to be picking up, at least in the Corona, Calif., area, according to Carl Dunlavy (610 E. Grand Blvd.) who writes that he and the boys have an official running date of every second Sunday each month, with a good turnout every session. His club, the Corona Miniature Racing Association, has ordered a new electronic timer from the Cramer Co. in Connecticut; it's called an "ET Time Totalizer" and is said to be accurate to .02 of 1%—which Carl feels is good enough for his group!

Kind Words from Norman. "I wish to congratulate the editors of ATH for such a fine magazine," writes Norman Deitchman (1334 S. Kildare Ave., Chicago 23). "I have not had an active part in model racing since my WWII army days and mainly due to lack of interest by the model mags. Here's a picture of my cars (above); as you can see they are sorta out of date. #11 is a Dooling Proto powered by a Hornet—its actual speed was never calculated. Velocity stacks were added to force air onto the cylinder head. I acquired the other one from a friend of mine in service. It was in very poor condition. I cleaned it up and installed a Super Cyclone dual ignition. Maybe if you publish the shot somebody can identify the old car. I think it may be a Synchro—it's very realistic even down to the front axle detail and side rods."

It surprises us how ATH gets around; not long ago we received a letter from Geoffroy de Beauffort (23 rue Joseph II, Brussels, Belgium); it gave us some trouble at first, since our correspondent had written in French, with which our rusty high-school French couldn't cope. When this problem had been solved by the "official ATH interpreter"—Technical Editor Alex Dawydoff—we were able to discern that Geoffroy wanted some dope on American race cars. He writes as follows:

"Since Sept. 1954 I have been buying regularly your excellent publication Air Trails Hobbies, for its auto-modelers column, 'Round the Track,' recently renamed 'Model Car News.'

"In the reports on the various races I noticed names of cars, most of which are unknown to me. You described in the Sept. issue a number of models well known here, but which are not considered by us to be speed cars. But such as the Arrows, Fox, and 1234 are entirely new to me. Our speed cars, in Europe are all special models, constructed by their owners.

"If information on these cars as well as on different classes of models in the U.S.A. was published in a previous issue, I will greatly appreciate it if you would so indicate. If not, kindly let me know where it could be obtained." We have suggested that he get in touch with the American Miniature Racing Car Association (1384 Berdan Ave., Toledo 12, Ohio); we are sure that Sec. Carl Noward will be happy to let him know the classes we have over here, and include some dope on a few of the most popular cars.

Speaking of Brother Noward, we were interested to learn during recent correspondence that he started modeling in the airplane field, and won quite a few contests; also that his wife Elaine is a very good model plane builder.

Some very interesting and simple models based on the Thimble-Drome power unit — which includes engine, drive wheels, and a sort of base pan— will be described in a future issue of ATH by Frank Ehling. There is a very smart sports car along the lines of a Jaguar, a sleek delivery truck, and some others which are secret. Another of Frank's projects that will be in an early issue is a little Jetex-propelled speedster, which may be operated on tether, but is much more fun—if you have a smooth straightaway of about 300 ft. length — to run free. Simple, cheap, and it will really *go*.

Although complete data on addresses etc. is not to be had at the moment, we list below the race dates for the Midwest Circuit as provided by the AMRCA: Belleville, Ill.—May 1, Aug. 28; Evansville, Ind.—May 15, Sept. 11; Newcastle, Ind.—May 29 (Little "500"), June 19, Sept. 25; Anderson, Ind.—Race Car Nationals will be held here in August at date not yet set, another race Oct. 2.

Hereafter, we will list race car dates along with all other model events that we hear of, in the regular ATH Hobby Calendar. Check the listings there each month. And while we are speaking of the AMRCA, it's time to think of membership renewals and also club registrations. Get them in to Carl Noward at Association headquarters, address as previously listed.

Some readers have commented upon the fact that we don't have much in Model Car News but info on speed work; well, there are other facets to the model car game, we know, but we just don't receive any info on what our readers are doing in them. We are most happy to receive and print the news of the speed fraternity, yet we would be equally glad to hear from scale car builders, those who have made R/C vehicles, get data on air cars, or just anything at all that our readers are doing in this field. Pick up that pen or pencil and dash off a few lines to us! We'll pass on the word!

A new oil called "Lubricin" is the subject of experimental work by Franny Wolf, who says that it has exceptional lubricating properties, but that it will be some time before he will be able to decide whether it is of much use to the speed boys. Franny advances the idea that a Memorial Race be held annually in memory of Joe Ilg Jr., and says he feels it only fitting that such a race be conducted at the place where Joe last raced, namely, Fox Speedway in Bethlehem, Pa. He thinks that members of the Lehigh Valley Club will agree with him on this, and expects to push it at coming meetings.

Franny says that a Hobbyport will probably be under way soon at Madison, Ill.; it is on the program of O. B. (Bill) Hill (Hill's Hobby Harbor, 327 Mulberry). Bill hopes to put in four controline circles and a boat pond, and may also install a car track—the latter only if there seems to be any interest in same. Let him know, you car boys in the Madison area, let him know!

Commercial Items. It seems established at long last that Dooling Bros. *will* make engines again. In fact, Franny's Chrome Specialty Products (513 Vesta Pl., Reading, Pa.) reports that Dooling has promised him some new 29's; price on these will be $17.95. Franny's has some new magnetos, and also cylinder liners for both 29 and 61 Dooling engines.

Model of GM Firebird turbo-jet experimental auto has been announced by Berkeley Models (West Hempstead, N. Y.); has plastic body and canopy, rubber wheels, with Nylon bearings, is propelled by CO_2 cartridges. Berkeley lists kit for 89c, and also sells it as unit package with tube of plastic cement, jet gun and supply of CO_2 cartridges, for $1.49. Another Berkeley item that may interest car builders is the "Wonder" motor, small electric job which may be had for direct drive, or in any of several reduction gear ratios. Plain motor will retail at $1.65; 10-1 or 18-1 reduction versions sell for $2, while 100-1 or 324-1 reductions types cost $2.50.

(Continued on page 61)

(*Continued from page* 11)

Dreamboat . . . I am sold on Ken's Dreamboat. Ken wrote in his article that the Dreamboat is very easy to build especially if you use Frank Zaic's 50" wing-stab kit. The only trouble here is that I have had *no* luck in acquiring this kit. *Where* can I get this kit??

Robert Salvo, Watertown, Mass.

● R/C wing and stab kit is made by Model Aircraft Co., Box 333, Sta. D., N. Y. C. 3.

R/C Equipment Mfr. Dissents . . . We have noted, with some dismay, several obvious errors in the article "Radio Control Equipment" found in the 1955 Air Trails Model Annual. Since some of these errors concern our products, we take this opportunity to bring the correct information to your attention . . .

The article starts out by stating that the multiple type escapement requires close attention to the number and spacing of pulses and specifically mentions the Ecco Escapement as an example. When used with the Ectron motor driven stick box, the Multitrol Escapement requires no attention at all to pulse rate, spacing, or count. The flyer simply selects the seven control positions available to him as he desires without any regard to order, past selection, or future intentions.

You further state, "To our knowledge, there are no motor driven beep boxes on the market, though a few custom-made jobs may be had." It is still clear that the writer of this article does not read Air Trails Hobbies For Young Men, for if he did he would have known that Ectron Products Company makes a very good one. He would even have known that the Multitrol Escapement . . . (closes) three separate contacts on the 2nd, 3rd and 4th neutrals, a fact which he casually ignores.

Ecco Manufacturing Company is listed as the manufacturer of the Ecco Multitrol escapement and ground controller. You thereby have listed an unavailable product made by a non-existent manufacturer. Ecco Manufacturing Company was taken over by Ectron Products Company in June 1954 and production on the ground controller and Multitrol Escapement stopped. The ground controller was dropped completely and a clockwork-motor driven stick box was designed to take its place. At the same time, many improvements were made in the Multitrol Escapement. The new and improved models went into production in September 1954 and were first announced in ads run in Hobbies for the months of November and December as stated above.

The sharpest pain of all was brought on by the tabular listing of equipment where you list the Ecco escapement as having a coil drain of 1100 milliamperes. We do not see how you could possibly arrive at such a value. The Multitrol Escapement has a nominal coil resistance of 6½ ohms and a 15 ohm current saver series resister. Manufacturing tolerances allow the coil to vary between 6 and 7 ohms while the resister has an allowable variation of ± 1.5 ohms. The minimum allowable overall coil circuit resistance is, therefore, 19½ ohms. At 4½ volts this gives a current drain of 230 milliamperes as the maximum. Since the probability of such an occurrence is 3 in 10,000 it can be seen that a unit with a drain higher than 230 milliamperes is an infrequent occurrence. As the majority of production will fall close to the mean, we can use this value to determine rather closely what the drain will be for the average unit. The nominal figures give an overall resistance of 21½ ohms producing a drain of 210 mils at 4½ volts and 140 mils at 3 volts. We guarantee to replace any unit which exceeds a current drain of 160 mils at 3 volts and 240 mils at 4½ volts with the current saver in the circuit. Even without the current saver, 1100 mils could not be obtained at 4½ volts with a good coil, meter, and eye since 6½ ohms at 4½ volts can give nothing but 693 mils. Incidentally the escapement works well at 3 volts and 4½ volts is the maximum we recommend, your listing notwithstanding.

Yours, for more editorial vigilance and less pain in the pocket book,

C. C. Caviness, Jr.
Electron Products Co., Smyrna, Ga.

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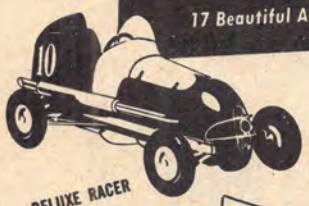
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Song of the Sky by Guy Murchie (Houghton Mifflin Company, 2 Park Street, Boston, Mass., 483 pages—$5.00) is an absorbing journey through time and the air envelope between earth and outer space.

The author has spent many hours in the air as a navigator and has looked upon his surroundings with an inquiring eye. He has recorded carefully and completely the history of navigation from the ribs of the palm frond used by the early Micronesians to the elaborate instruments of today. The complexities of piloting and navigating modern aircraft traveling at hundreds of miles an hour are compared to the slow sailing ships of the Phoenicians. Old methods and theories had to be forsaken for new and more accurate means of pilotage—since an error of a few seconds could take an airliner off course many hundreds of miles. Today the navigator is an important member of the team which decides whether an airline will carry additional fuel at a tremendous cost to the company or sacrifice some fuel for additional paying passengers, always keeping in mind the safety of all concerned.

The sky begins at our feet — we breathe it—we actually are crawling on the bottom of the air sea. In this great ocean of air the airplane leaves a wake just as surely as a ship in the water. Just as the Gulf Stream flows in the sea so in the air ocean there is the Jet Stream about eight miles above the earth flowing at the velocities from 100 to 500 miles per hour. Near the end of World War II, B-29s flying to Japan at an altitude of 40,000 feet met head winds of 400 m.p.h. and actually found themselves flying backward.

With this book the reader gains an understanding of the problems of aerodynamics and meteorology in this age of modern flight. It has been written lucidly with an intimate touch which makes the reader feel he is looking out of the navigator's astrodome at the heavenly wonders about him.

Windjammer Modelling by Clive Monk (John de Graff, Inc., 64 West 23rd Street, New York 10, N. Y., 128 pages —$6.00) is a different and interesting approach to the absorbing hobby of sailing ship construction.

The author has taken one of the last of the windjammers, the four-masted barque *Ross-Shire,* and piece by piece creates its non-operating shelf model. New members of the model ship building fraternity will find this book invaluable since each building step is fully diagrammed to scale and leaves nothing to chance. As the reader goes along he encounters interesting log entries by the captain of the *Ross-Shire* during her many voyages which almost make this ship come alive.

This book fits well into a club or community library and is invaluable as a handbook for the beginner. Suggested plans for ships and new methods of making rigging will delight even the "old timers" in the craft of model ship construction.

Kites by H. Waller Fowler, Jr., (A. S. Barnes and Company, 232 Madison Avenue, New York 16, N. Y., 95 pages —$1.75) is a practical guide to kite making and flying.

As we all know kites have held the interest of both young and old from the earliest days. Observation of birds in flight started off the first kite makers.

The author has taken basic designs and presents the good and bad points of each. This book shows how you may put the kite to practical use as a vehicle for aerial photography, or for surf casting. (A kite will carry bait far out over the water where the "big ones" just wait to be caught.)

This book on kite flying is another of the Barnes Sports Library series; if any reader has been unsuccessful in this pastime, here real "know-how" can be found.

Build Your Own Summer Camp or Cabin by Jeffrey H. Livingstone (McGraw-Hill Book Company, 330 West 42nd Street, New York 36, N. Y., 152 pages—$4.50) is written for the boy or man who has dreamed of his own cabin by a lake or deep in the woods.

Complete designs for cottages plus expert guidance from foundation to interior finish enable you to select your cabin site, then orient your building to make use of maximum sunlight. Choosing your water supply and working out the details of drainage and sewage disposal are subjects also covered in detail.

The author has given plans of starter units; around such a core additional



rooms can be added in later years. No detail has been overlooked; you'll find interior arrangement of bookshelves, bunk beds, cabinets and furniture as well as their construction specifications. It's all there.

Also included in this volume are a number of photographs of summer places that have been built by other architects —thus giving the reader additional ideas for his own "dream cabin." (Every young fellow has one in the back of his mind, along with that dream car or dream boat.)

Here is a book that will help you get your vague imaginings in focus, clarify your planning. The construction information is thorough and complete . . . and the comparative material is carefully selected. Both fathers and sons should enjoy this one.

All about Aircraft by D. M. Desoutter (John de Graff, Inc., 64 West 23rd Street, New York 10, N. Y., 474 pages —$5.00) is a complete handbook of basic, useful aeronautical information.

The author leads the reader from the behavior of air and the principles of flight to the present problems of high altitude flying and the "heat barrier" that must be conquered in stratospheric flight.

Data on over a hundred modern aircraft with photographs, powerplant specifications, flight performances is given, including that for the Rolls-Royce wingless, propless "flying bedstead."

Additional chapters deal with the medical aspects of high altitude flight, special equipment such as electronic devices for pilotage, ejection apparatus, pressurized suits and cabins—also guided missiles with a tabulation of their characteristics.

For anyone interested in the manufacture or flying of planes—here is one of the most complete, up-to-date reference manuals covering the many problems faced today by both civilian and military aviation.

Sun, Sea and Sky by Irving P. Krick and Roscoe Fleming (J. B. Lippincott Company, East Washington Square, Philadelphia 5, Penna., 248 pages — $3.95) is the story of weathermen at work.

Few realize the part that weather has played in the history of the world. The authors cite instances not only where the course of history has been changed but drop a hint what our world could be like weatherwise a hundred years from now. The theory of the "greenhouse roof" and the rapid increase of carbon dioxide in the atmosphere due to our modern way of life, can, within the next hundred years, raise the mean temperature of the earth two degrees. This would have as a result: polar ice caps would melt, the level of the sea raised and the shoreline of the continents changed beyond recognition. This and many other fascinating theories make "Sun, Sea and Sky" fascinating reading.

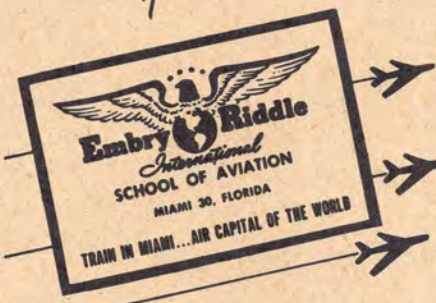
One of the authors, Dr. Krick, achieved fame with the practical seeding of clouds with the silver iodide generator. Its uses and limitations are fully discussed, clearing up a lot of misconceptions.

Weather patterns the world over and their effect on populations give rise to many theories of world conquest by weather control. The chapters on weather maps and the preparation of local predictions guarantee many hours of stimulating reading.

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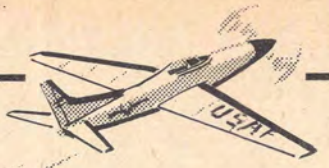
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INDUSTRIAL ARTS AWARDS — FORD MOTOR COMPANY

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Please advise us if you move, giving old address and new address; allow four weeks for change of address; address subscription mail to Subscription Department, Air Trails HOBBIES For Young Men, 304 East 45th St., New York 17, N.Y.

Speaking of HOBBIES

ALL ABOUT YOU

Last issue we reported on some of the eye-opening results of the big hobby-model survey made via the ATH Reader Research Panel. Here's some more data that you should find of interest.

We learned that about 73.1% of you readers are planning to go to college (an additional 11.5% of our readership is already in college). Of the thousands of you who are headed for a higher education, 69.1% will be concentrating on technical and scientific studies (30.1% in aerodynamics and aeronautical engineering alone).

Even though we receive a lot of photographs from you readers, we were astonished to find that a tremendous 82.6% of you own one or more cameras. Half of you got your camera as a gift. No reason why the quality of a lot of the photographs you submit to us couldn't be improved—we're planning to run some material which should help you in taking better pictures.

More than a quarter of our readers belong to organized hobby clubs.

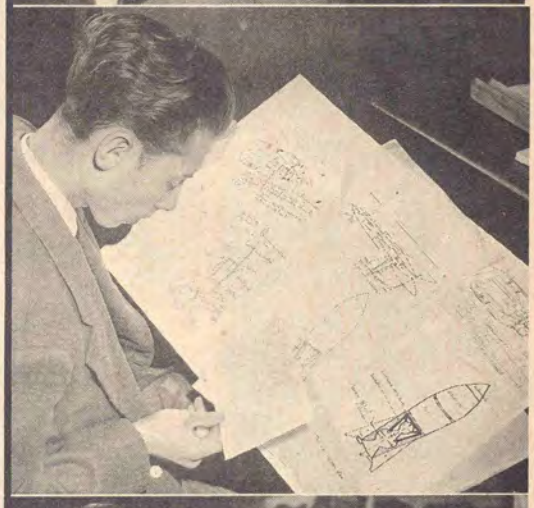
Now about those specific suggestions you had on the survey reports concerning items you need most in your hobby modeling. We discovered that 54.7% of the ATH readership have trains and most of the train owners report they have their greatest trouble in finding small parts such as proper size screws, wiring, switches, gears and the like. The model plane readers want more and better miscellaneous parts, they'd like to see balsa wood available in "good" sizes and not the least of all there's a general gripe about the difficulty in locating engine parts.

Pity the poor model boat builder! He complains about engines and says they should be more powerful. Another discontented note that keeps recurring in the Panel's replied reads "starting features poor." We assume that those fellows (and there were lots of them) were talking about the difficulty in starting engines once they're installed. Lots of fans said that boat engines need better cooling systems. And 49.1% of the boat-building modelers—nearly every other Panel respondee—commented bitterly about the lack of suitable fittings.

Well, so much for the statistics this month. When we get the chance we've got to get out and visit 38 lucky modelers who reported that they had more than 10 motors apiece! Those guys must each own a uranium mine.

Photo report—from top to bottom: All the enthusiasm that boys—and men—have for model aircraft is reflected here as President Eisenhower picks up a couple of supersonic fighters during a White House ceremony. The models represent the products of plane builders who received the Collier Trophy from the President. . . . A batch of space ship plans and letters are typical of those sent by youthful fans and received regularly by the Guided Missile and Upper Atmosphere Research Center at White Sands Proving Ground, N. M. Writers often ask to be placed on the list of first travelers into space or offer to help build the first space ship. All are answered and encouraged to continue their thinking along scientific lines. . . . Our final two pictures which should interest all you "hand-minded" craftsmen concern Italian youths who are going to a school in Milan to learn the old and difficult art of glass-cutting. The school is run by a master of the craft, German-born Erwin Walter Burger, who has lived in Italy since 1928. Burger opened his school shortly after World War II.—**A.L.L.**









STREET & SMITH PUBLICATIONS, INC.

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Start Your Water-Line Navy With This Five-Foot Radio Controlled

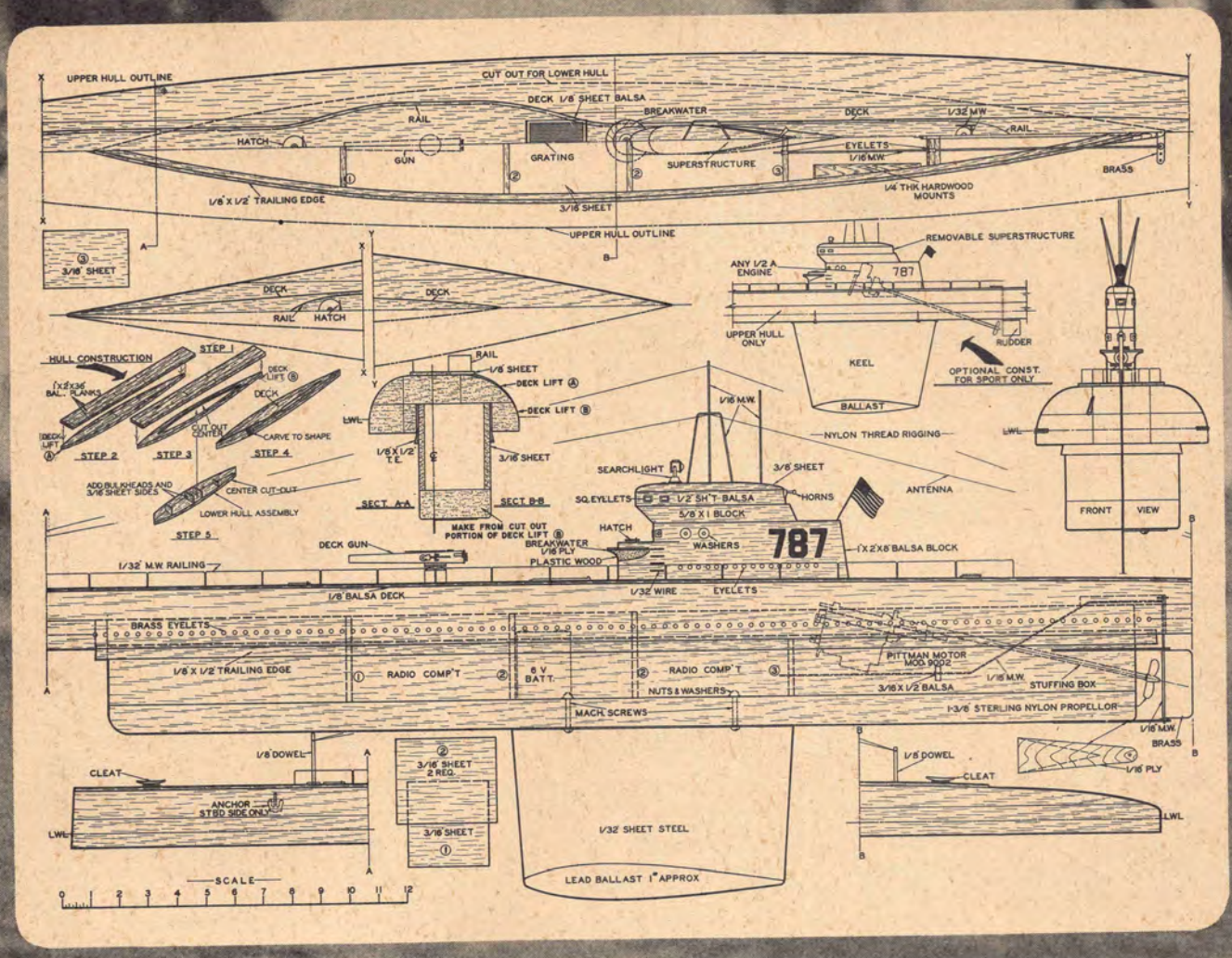
Pseudo-Sub

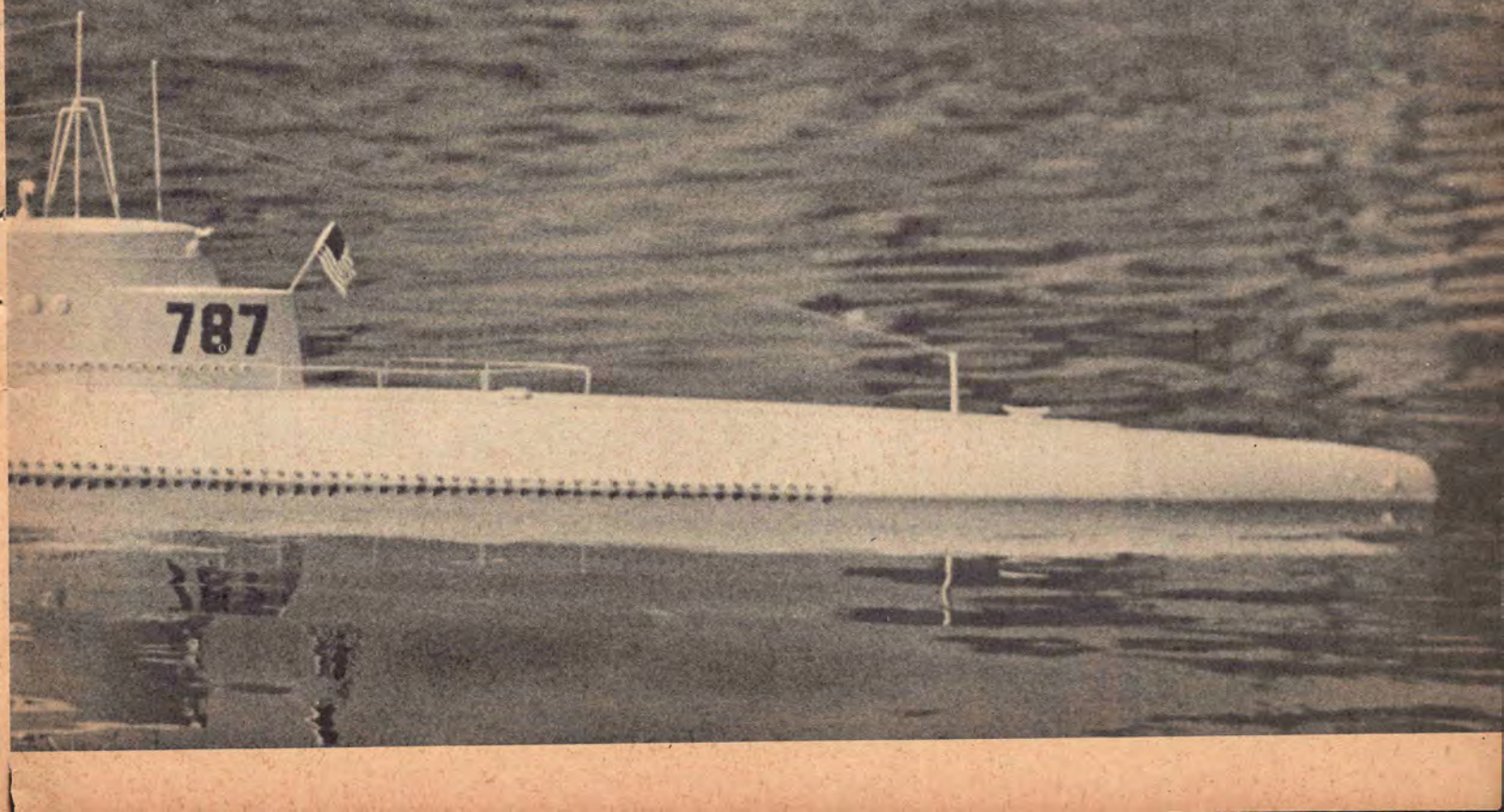
Remarkable feature about this model is its "power hull" with motor and radio controls usable on other craft as well.

By CAP'N FRANK VAN BUREN

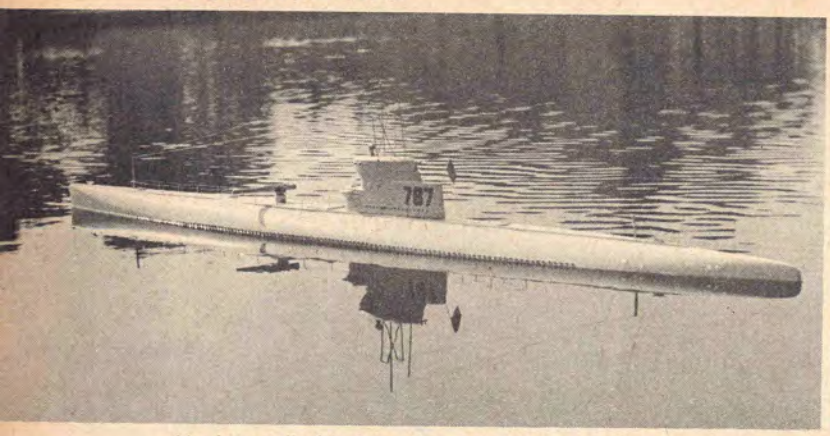
■ To make a sub the size of this one by conventional methods—that is, carving a full hull, hollowing it out, and so on—would be a tremendous undertaking, not to mention the cost in wood alone. The U-boat shown is five feet long, yet it can be made for quite a modest sum and require a comparatively small amount of labor. All who see it cutting across the water will agree it is just as realistic as one with a full fish-shaped hull. What we actually do is to build a "water-line model," but a few extra tricks make it quite seaworthy, and there is plenty of room in it for drive equipment and radio control apparatus, if you want to install it. Furthermore, if you also want a mantel display model, just remove the "power hull" and you'll have one. And one last inducement: the same power hull may be fitted to other boats made on the same




UPPER HULL OUTLINE
CUT OUT FOR LOWER HULL
DECK 1/8 SHEET BALSA
RAIL
BREAKWATER
DECK
1/32 M.W.
RAIL
HATCH
GUN
GRATING
SUPERSTRUCTURE
EYELETS 1/16 M.W.
BRASS
1/8 X 1/2 TRAILING EDGE
3/16 SHEET
1/4 THK HARDWOOD MOUNTS
UPPER HULL OUTLINE
REMOVABLE SUPERSTRUCTURE
ANY 1/2 A ENGINE
787
UPPER HULL ONLY
KEEL
RUDDER
OPTIONAL CONST. FOR SPORT ONLY
BALLAST
HULL CONSTRUCTION
STEP 1
1/8 X 3/6 BAL. PLANKS
DECK LIFT B
DECK LIFT A
DECK
CUT OUT CENTER
CARVE TO SHAPE
STEP 2
STEP 3
STEP 4
ADD BULKHEADS AND 3/16 SHEET SIDES
CENTER CUT-OUT
LOWER HULL ASSEMBLY
STEP 5
RAIL
1/8 SHEET
DECK LIFT A
DECK LIFT B
LWL
1/8 X 1/2 T.E.
3/16 SHEET
SECT. A-A
SECT. B-B
MAKE FROM CUT OUT PORTION OF DECK LIFT B
BREAKWATER 1/16 PLY
PLASTIC WOOD
1/16 M.W.
NYLON THREAD RIGGING
SEARCHLIGHT
3/8 SHEET
SQ. EYELETS
1/2 SHT. BALSA
5/8 X 1 BLOCK
HORNS
ANTENNA
HATCH
WASHERS
787
1 X 2 X 8 BALSA BLOCK
FRONT VIEW
DECK GUN
1/32 M.W. RAILING
1/8 BALSA DECK
1/32 WIRE EYELETS
BRASS EYELETS
1/8 X 1/2 TRAILING EDGE
RADIO COMP'T
6 V BATT.
RADIO COMP'T
PITTMAN MOTOR MOD. 9002
1/16 M.W.
STUFFING BOX
3/16 X 1/2 BALSA
NUTS & WASHERS
MACH. SCREWS
1-3/8 STERLING NYLON PROPELLOR
1/16 M.W. BRASS
1/16 PLY
1/8 DOWEL
CLEAT
ANCHOR STBD SIDE ONLY
LWL
3/16 SHEET 2 REQ.
3/16 SHEET
1/32 SHEET STEEL
LEAD BALLAST 1" APPROX
1/8 DOWEL
CLEAT
LWL
SCALE
0 1 2 3 4 5 6 7 8 9 10 11 12


787

PSEUDO-SUB



Hard to tell this from the real thing, no? Pseudo's simple construction leads us to predict that many will be afloat this summer.

principle, so you can have a whole operating fleet with minimum cost for propulsion and radio equipment.

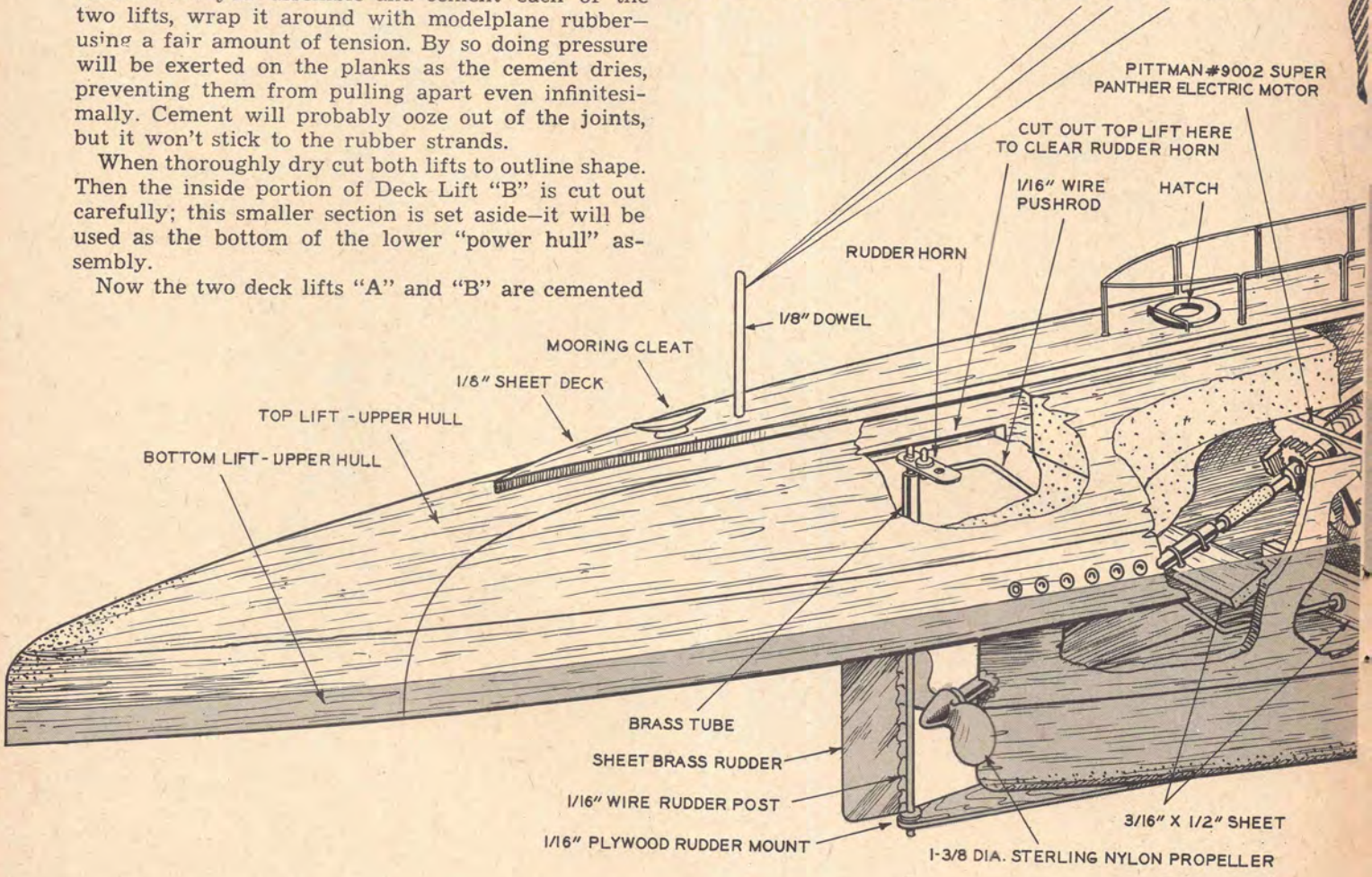
As shown at left center on the plans, you begin by cementing together 1" x 2" balsa planks to make two larger pieces, Deck Lift "A" and Deck Lift "B", each measuring 1" x 6" x 5' long. Use slow-drying cement. As you assemble-and-cement each of the two lifts, wrap it around with modelplane rubber—using a fair amount of tension. By so doing pressure will be exerted on the planks as the cement dries, preventing them from pulling apart even infinitesimally. Cement will probably ooze out of the joints, but it won't stick to the rubber strands.

When thoroughly dry cut both lifts to outline shape. Then the inside portion of Deck Lift "B" is cut out carefully; this smaller section is set aside—it will be used as the bottom of the lower "power hull" assembly.

Now the two deck lifts "A" and "B" are cemented together. Use plenty of adhesive here!

Cut out the ⅛" deck next; locate and hold in place on top of the upper lift, and trace its entire outline. Then remove the deck, and sand off the top hull edges to a uniform rounded cross-section, using the deck line as your upper guide. When this job has been finished, and the rounded areas well sanded, cement the deck in place. Next comes the superstructure, made up of blocks as specified on the drawing. If you expect to build the sub with the power hull, there is no need to hollow out the superstructure. However, you can make a working model propelled by a Half-A engine, as shown on the small sketch; if you do this, you would not cut out the lower hull lift, of course, and the superstructure will have to be made hollow and removable. A water-cooled engine should be used for this version.

The power hull is built up upon the piece you cut from the Deck Lift "B." Install the bulkheads to give the sides strength, and cement ⅛" x ½" triangular trailing edge balsa wing stock all around the edge, to give a sort of wedging action when the power hull is pushed up into the cutout all the way. You can, if you want, make provision for screws running down from the deck, to hold the power hull in place; however, no such fastening was used on the original, the wedging action of the trailing edge strips being



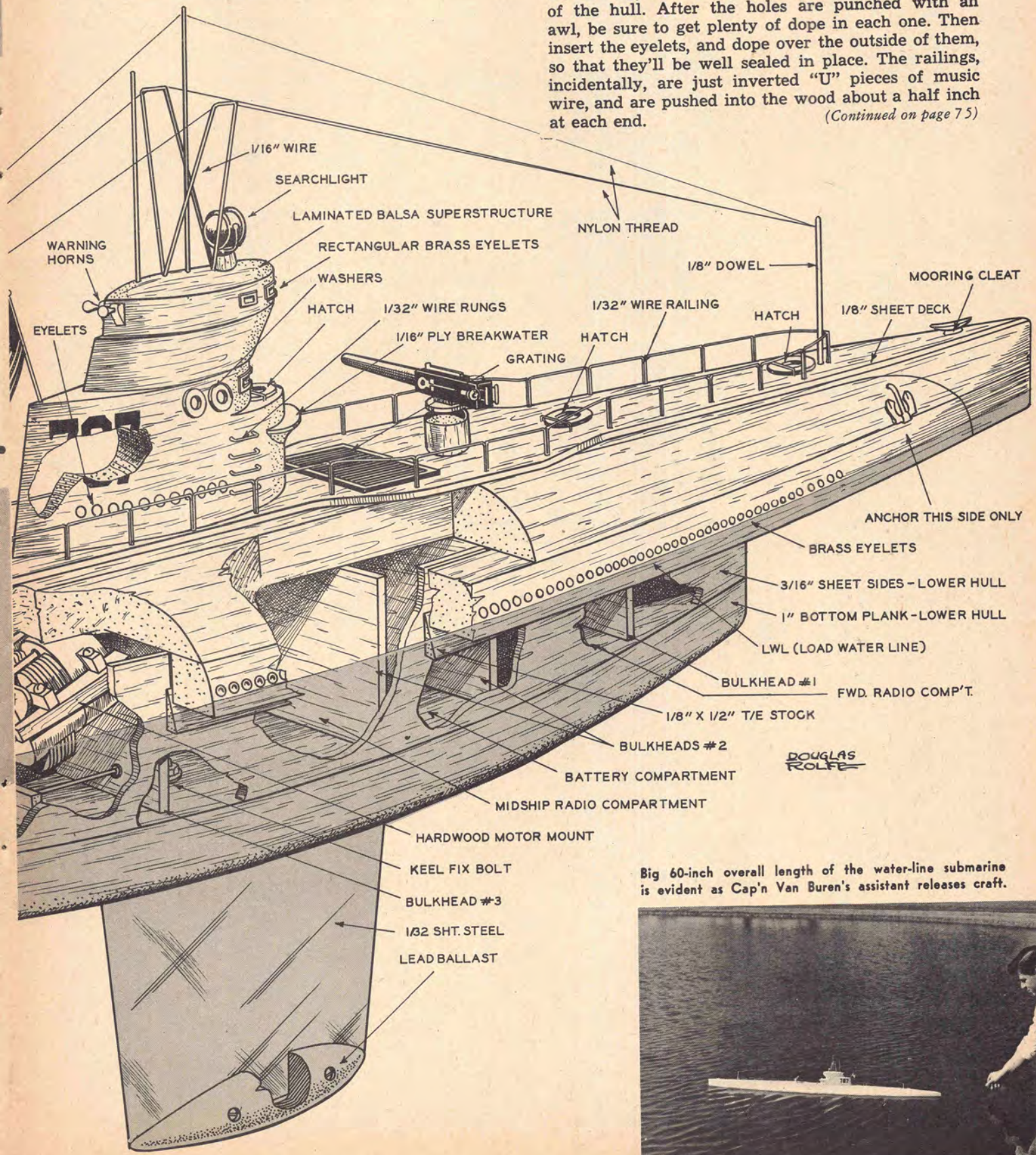
Full-size plans for Pseudo Sub radio control craft are part of Group Plan #655 available from Hobby Helpers, 770 Hunts Point Ave., N. Y. C. 59 (50c).

sufficient to hold the two parts together.

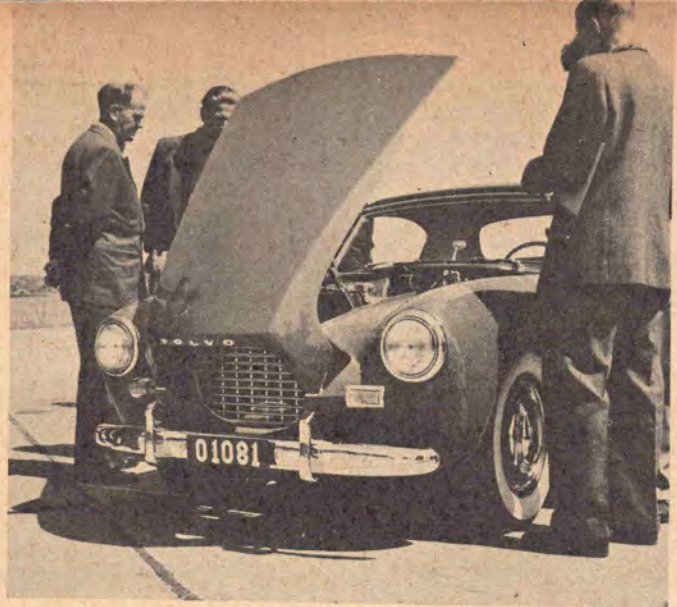
You are now to the point of waterproofing and finishing the wood parts, and let us say right here that this is the most important step in the entire project! If this waterproofing and sealing is not done thoroughly, water is bound to seep in. And wherever it does, the resultant swelling of the balsa will crack the finish, to let still more water in. Start out with several coats of good balsa sealer, sanding between each coat to smooth out the bumps. Don't skimp on the sealer, as there is no need to keep the weight down. Apply the sealer up inside the lower lift cut-out, and it wouldn't hurt to put several coats inside the power hull too.

Special care is needed wherever there are holes made in the balsa surface, as for example those for the railing, and for row of eyelets along the side of the hull. After the holes are punched with an awl, be sure to get plenty of dope in each one. Then insert the eyelets, and dope over the outside of them, so that they'll be well sealed in place. The railings, incidentally, are just inverted "U" pieces of music wire, and are pushed into the wood about a half inch at each end.

(Continued on page 75)



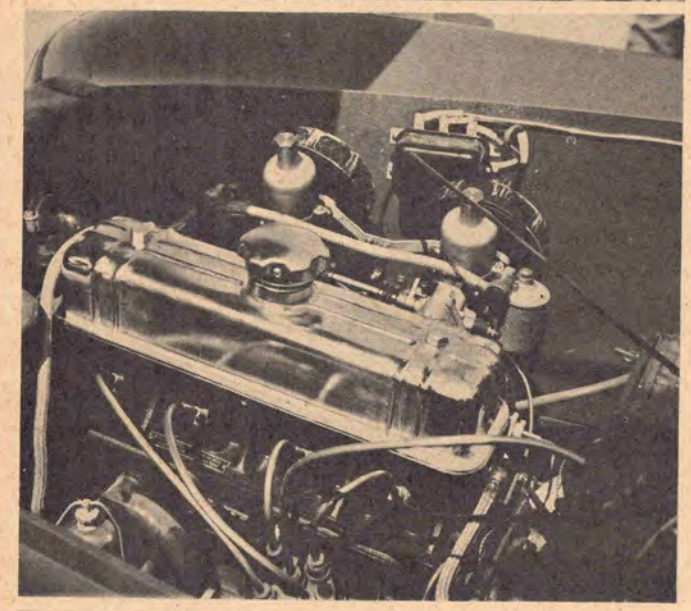
Big 60-inch overall length of the water-line submarine is evident as Cap'n Van Buren's assistant releases craft.





AUTO PROGRESS:
Sweden's Volvo Sport



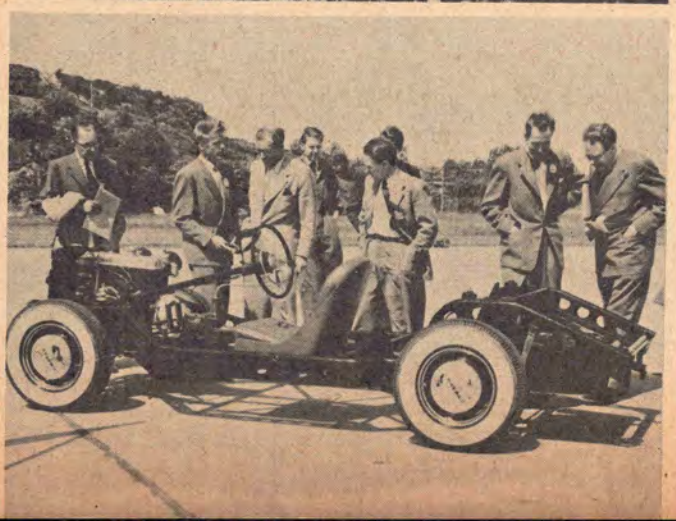


■ Until now, Sweden's sportcar enthusiasts did all their motoring in imported jobs. The native automobile industry, consisting of two major manufacturers, SAAB, which also builds the country's military airplanes, and Volvo produced small passenger automobiles not noted for exhilarating performance. But rapidly growing interest in sport driving finally moved Volvo to produce a fast little roadster based on the popular four-cylinder PV 444 chassis. For lightness it was decided to equip it with fiberglass body, in shape not unlike that of the Italian Ferrari. Inasmuch as the Volvo concern had no experience with plastics, the work was done by the Glaspar Co. of California and the bodies shipped to Sweden.

The four-cylinder overhead valve powerplant of 1380 cubic centimeters (86.62 cu. in.) was hopped up by installing a special camshaft, two British SU carburetors and raising the compression ratio to 7.8:1, which increased the horsepower from 44 at 4000 rpm to 70 at 6000 rpm. The chassis is constructed of steel tubing reinforced with steel plates, drilled for lightness. The suspension is by coil springs on all four wheels. Wheel base is 94 inches, total length 164 inches, gross weight, including 14.5 gallons of gasoline, 2028 lbs. The little car seats two and is only 4.5 feet high to the top of the windshield. It has a three-speed transmission with shift lever mounted on the floor, and is capable of 97 mph.

Inasmuch as it is equipped with self-sealing tires it will be delivered without a spare. For weather protection a neat fiberglass top, weighing 27 lbs., is available. Production rate will be only one car a day, and eventually the bodies will be manufactured in Sweden. The builders do not claim this to be a competition car and will not enter it in races. However, this does not exclude racing by owners.

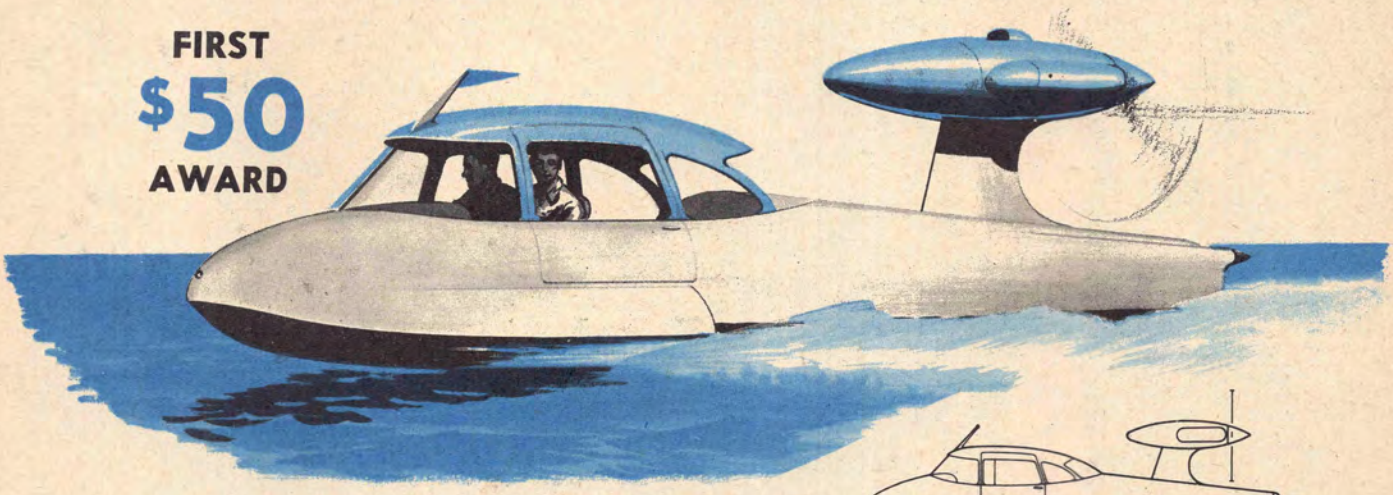
—Photos and Data by BJORN KARLSTROM

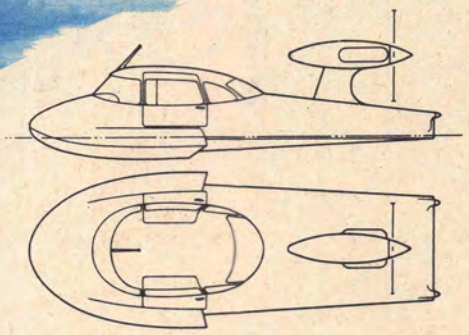




Boat Design Competition

FIRST
$50
AWARD





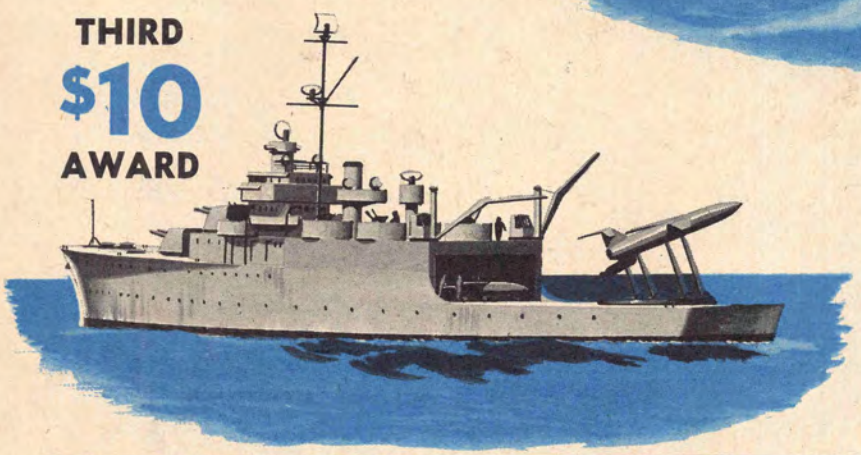
Richard Kissling of Wadsworth, Ohio, submits design for an air-boat named "Airqua Car." It is a pleasure type craft powered by a 200 hp flat-six air-cooled engine driving a pusher propeller. Special feature is the step-up style hydroplane hull which permits skimming at a fast clip on top of the water. The boat can carry five comfortably at a speed of 50 mph. Length is 32 ft., beam 12 ft., height 7¼ ft.

SECOND
$25
AWARD

Design for a pleasure yacht convertible to patrol boat by John Hardwig of Chicago, Ill. Overhanging deck permits disembarking at low docks, also serves as sturdy rub-rail. Open forward deck can be closed over by sliding cover. Powered by twin 12-cyl. GMC diesels of 447 hp each. Length 80 ft.



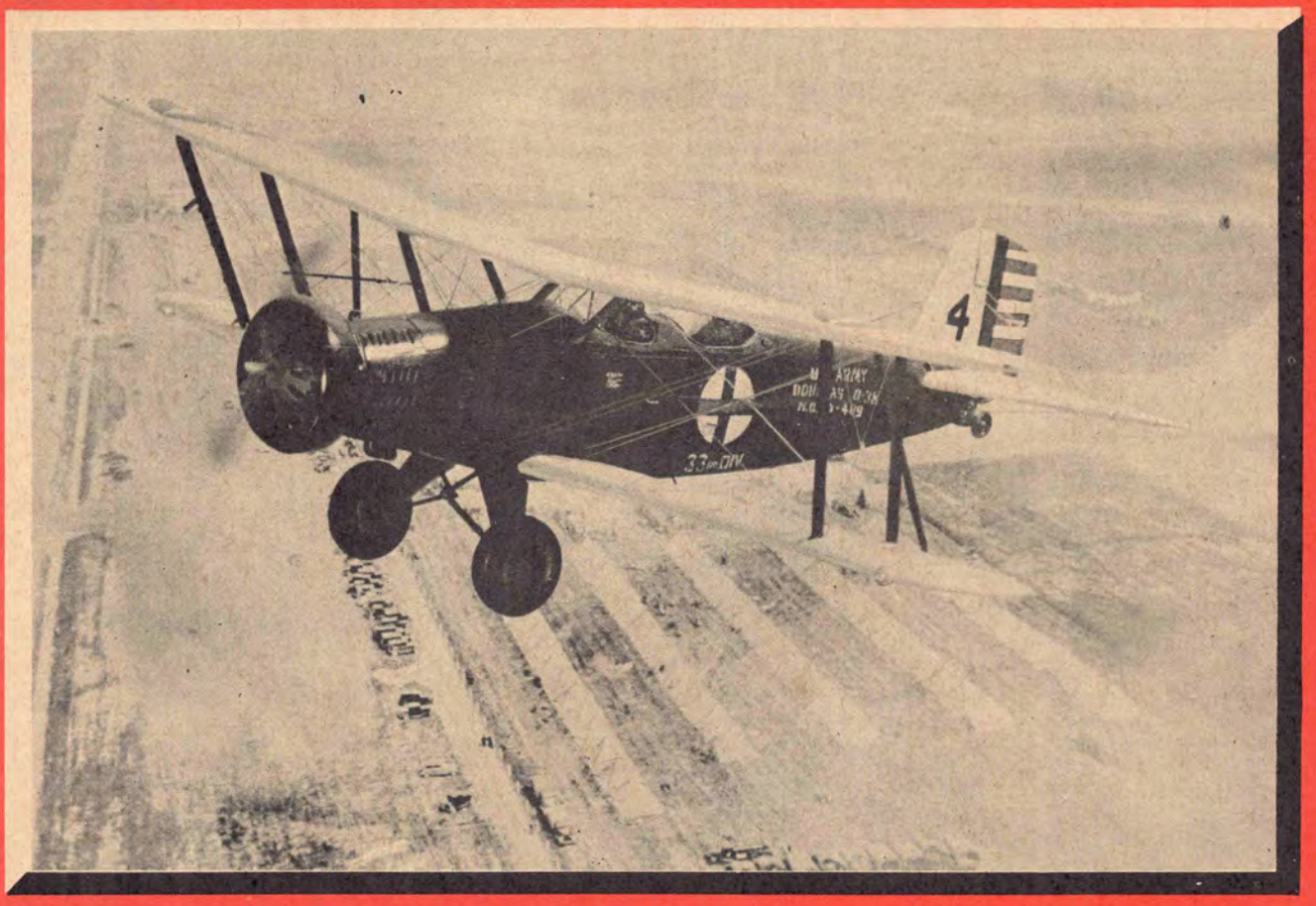
THIRD
$10
AWARD



Guided missile launching ship by Andrew Kovacs, Yardville, N. J. Powered by nuclear reactor engine developing 10,000 shp, driving twin screws. The missiles are stored in a special deck hangar just forward of zero-rail launcher. Destroyer type hull, for high speed, is 320 ft. long, beam 40 ft.

Rules governing this design competition are as follows: Profile (side), plan (deck) and (cross) sectional views of the proposed craft will be required, plus any detail sketches necessary to illustrate unusual features. Do not handicap yourself by submitting hull drawings less than 6 inches in overall length. Give sketches of craft from three-quarter front and rear positions. Photos of a model of the proposed design may be included. Information of powerplant(s), estimated performance, dimensions and explanations of special features are required. Data as to age, occupation or schooling of the entrant should accompany each submission. Mail entries to Boat Design Competition, Air Trails HOBBIES for Young Men, 304 E. 45th St., New York 17, N. Y. Entry each month judged most practical or of greatest significance will receive $50; $25 will go to second place and $10 for third. The editors regret they cannot enter into any correspondence or return entries.

Photography and Models



Illinois National Guard Douglas O-38 flies in for 1932 encampment and maneuvers. This is an all-wood quarter-inch-to-foot scale model sitting on a sheet of thin glass. In the background is an enlargement of a photo of the Milwaukee County airport. Propeller was removed from model for this picture. Negative was retouched to add prop "spin." Flyers in cockpit also retouched. For lighting here a #4 photo flood was used as sunlight and a #2 for slight fill-in purposes.

Ohio Modeler Uses Solid Models To Turn Out Realistic Plane Photos

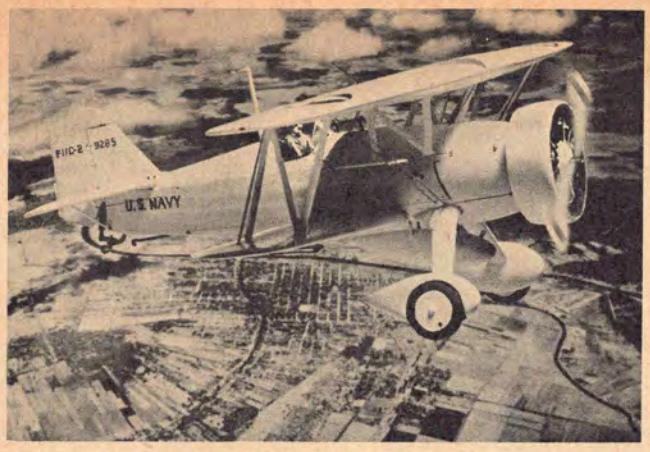
■ As an ardent collector of all kinds of material pertaining to the history of aviation, Paul R. Matt of Cincinnati has acquired an extensive aeronautical library. Along with rare photos, plans and materials he maintains more than 100 solid wood quarter-inch-to-the foot scale models which he has constructed himself. He photographs each of his models upon completion. For many he has built individual settings.

Mr. Matt's photographs rank among the finest that have come into the editorial offices. Regarding the models themselves the Cincinnati modeler-photographer reveals that all engines are built up. Cockpits are routed out of the wooden fuselages and in some instances hand-carved dummy pilots are made.

Most of the backgrounds which Mr. Matt prepares measure 11 x 14 inches. Appropriate to the plane and time of its appearance, the background is either hand painted or a mounted photograph. Various materials are used to create ground and scenic effects. Each set-up takes about two hours to prepare (exclusive of the background art).

As indicated by the accompanying captions, Mr. Matt relies on a Speed Graphic and two flood lights. Models are positioned about 12 inches from the background. In order to get depth and sharpness the camera is moved back to where only about a 2 x 3″ section of the 4 x 5″ negative is utilized. As a result enlargements are held to 5 x 7″ rather than 8 x 10″. This camera positioning gives sharpness in the area around the model and does not over-emphasize the foreground.

Retouching is done on all negatives. Slight blemishes are pencilled out—or in—if the setting demands. Reflections are eliminated or added. Spinning propellers are carefully blended for that appearance of true sheen you have seen come from a real plane's prop.



This Curtiss F-11-C2 "Goshawk" is depicted flying over the southern part of Louisiana. Actually it's a quarter-inch-to-the-foot solid wood scale model sitting on a piece of glass with an 11 x 14" enlargement of an aerial view underneath and back about 12 inches. One #4 photoflood high above as the main light and a #2 photo flood at camera level (as a weak fill-in). Negative was retouched to dub in spinning propeller and to add slight reflections. Deta: 4x5 Speed Graphic 135-mm lens, Kodak Super Panchro Press film, One second at f/32.



Here a Fairchild F-24W out of Milwaukee heads west on a flight to the Coast . . . or so Paul Matt would have you believe. Actually this is another of his exquisitely detailed quarter-scale craft again posed on a sheet of glass (which must be absolutely clean and clear of even minute dust particles for best results) over an enlargement of clouds previously taken from a real airplane. Model prop removed and negative retouched to simulate spinning. One #4 floodlight as main light only. Exposure on Super Panchro Press, One second at f/32.



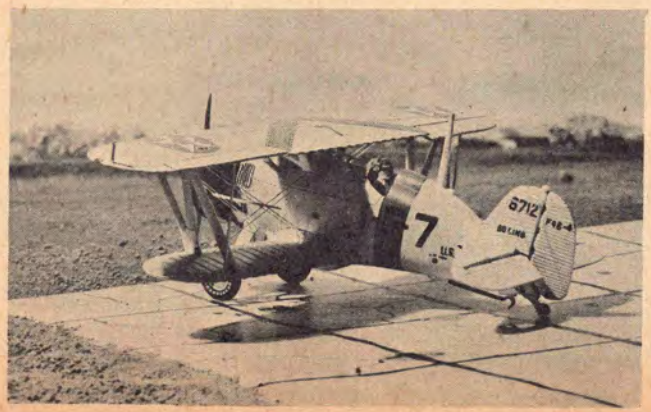
You remember Lincoln Ellsworth's "Polar Star," a Northrop "Gamma" which landed on Deception Island in Antarctic Circle on snow pack in January, '35? Well, Mr. Matt wasn't really there. All he did was set his quarter-scale all-wood model up on a table top and add snow (a combination of cotton, flour and salt). Figures are cut out of cardboard. Background is hand-painted in water colors. One #4 photo flood served as main light and a #2 at camera was for slight fill in. Negative was not retouched.



Sopwith 5F.1 "Dolphin," brand-new from the factory arrives at an airfield "somewhere" in France in 1918. Again, a quarter-scale in a table-top setting. Hand-painted background; real mud laid on board about half-inch thick and slightly moistened to retain "muddy" look. Snow is combination flour, salt and mica dust. Like photos above negative was developed in DK-60a; enlargement was by Omega D-11 on Dupont Varigam, no filter used; print developed in Ansco Vividol. Real WWI atmosphere here.

Boeing F4B (below) prior to take-off at Anacostia, Washington, D.C. in 1933. Pilot is checking controls from cockpit. Here, again, Mr. Matt has painted by hand the background details. Distant dirt was ground finely through a cooking sifter. Real grease and oil spots, heavy black paint for tarred breaks in cement on cardboard apron. So authentic, you overlook fact that model details are somewhat rough—proving that a good photographer can take your mind off the facts.

This one (below) has us puzzled. P.M. says the background is watercolor on large sheet of cardboard; looks like a photo to us. In either case it gives a feeling of realism to this Boeing P-26A of the 95th Pursuit Squadron at a Texas Army Air field. Grass and dirt are artificial grass and real dirt intermixed. One #4 photo flood as main light and a #2 used at camera as fill-in. Exposure was one second at f/32. Walter Jefferies did scale three-view on this plane in March 1954 ATH.





Summer Jobs for Future Engineers

What kind of work during school vacations will best help prepare you for which branches of engineering? Here's practical advice

Dear Bill:

You will graduate from high school next June. Your father tells me you want to be an engineer (not just sure what kind), and asks me to advise you regarding your education and summer jobs. I am mighty glad to do this, because I think you have the ability to go places in engineering if you get the right start. For many years I have been thinking about this matter of job preparation and noticing which men got ahead and which didn't and why. I have discussed job training with many college professors and with successful engineers and business men in many industries.

To get us right down to brass tacks, I have laid out the attached job-preparation chart, which sums up my own observations and convictions.

No two men ever see things exactly alike, yet I feel, Bill, that the average engineer of long experience will admit that this chart is at least 80% right. Certainly all successful business men and engineers agree about the importance of getting along with people and of being able to express yourself successfully in writing and in speech.

A few engineers, and many of the professors, might claim that I have overstressed the importance of picking up a lot of practical skills *before* graduating from engineering school. Yet the longer I live the more certain I become that certain elementary skills are as fundamentally useful as Ohm's law and the multiplication table, because they enter into every move the engineer makes in actual life.

Don't get the idea that you can safely postpone some of these things until after you get your diploma. Did you ever hear of a great musician who confined himself to the theory of music in his early years and didn't start thumping the piano until he was twenty-five? No, youth is the time to learn to play an instrument, to skate, swim, ride a horse, sail a boat, dance, get along with people, run a typewriter. I can't see any good reason why you should wait until after graduation before learning how to write a business letter, swing a hammer, push a file, sell a bill of goods or get along with a bunch of workmen.

THIS IS AN ACTUAL LETTER

The author, a practicing engineer, wrote it to his nephew, a junior in high school, to help "Bill" plan his job schedule during the summers ahead, including the college years, in a way profitably to tie in with his engineering ambitions.

Originally titled "So You Want to Be an Engineer," it is reprinted here from POWER, a McGraw-Hill Publication.

Land on Four Feet

Before I explain how to use the job chart, I must deliver one more piece of advice, based on long experience and observation. You've probably read inspiring stories about men who start young preparing for one specific job. In general, I don't think it's a good plan, although there have been spectacular exceptions. I'm not underestimating the importance of having a definite purpose in life, but feel that too-early specialization is very dangerous. Observe the ways of the cat, Bill. She knows more than one way to jump. Her outstanding talent is the ability to land on four feet under any and all circumstances.

To be safe you've got to be versatile. How many men today are actually in the jobs they picked for themselves 20 to 30 years ago? How can you be sure about what you will be doing in 1975? When that day arrives, the job you planned may not even exist, or the rapidly changing world may have created a new, and much better, opportunity for you somewhere else. There is always a lot of chance and uncertainty in human affairs. Above all things, prepare yourself to land on four feet no matter where you are tossed. That means being able to do those simple every-day things that enter into all jobs everywhere.

I hope you get this point, because it is important. Don't decide right now that you are going to be an air-conditioning engineer or a diesel engineer (whatever that is). Train yourself in the general fundamentals of mechanical and electrical engineering. At the same time, acquire some skill in the simple every-day operations of all engineering and business occupations. I repeat, start right now learning how to talk and write English, work with people, sell, handle tools and machines, write business letters, keep simple accounts. Then you will be equipped to make a living with your hands and end as far up the line as your head, your adaptability, your energy and your good luck can carry you.

It's about time I explained that job chart. The names at the top of the columns indicate general classifications of jobs. Starting with an engineering slant, you are almost certain to land in one of these classifications eventually, but it's hard to tell which at this distance. Therefore prepare, to some extent, for all of them.

Down the left-hand side of the chart I have listed important elements of job preparation and back-

ground. These are grouped as *general skills, special skills, field experience* and *college studies*. Every one of the listed items is part of the necessary preparation for some job or other. Most of them would be helpful in a hundred different jobs.

Rating Chart

The next thing I did was to consider how much value each element of this imaginary preparation would have after you were well established (say 15 years from now) in any one of the general job classifications. I have rated a particular item of preparation *1* where you would find it essential or extremely important and *2* where it would be helpful, but less essential. You will better understand what I mean if you will look at the line *shop mechanic*. Early shop training has real value in any job you may later get, but it will be more important in some lines than in others. I rate it *2* if you later become a sales engineer and *1* if your final job is on the engineering side of factory work.

To simplify matters, I have considered only the requirements of the advanced job. That is why, for example, I have listed sales experience and ability as a *number 1* requirement for engineering research. That might not seem to be necessary, but it will be if you ever become a research executive faced with the problem of "selling" ideas to your staff and of "selling" the financial heads of your company the necessity of an adequate research budget.

If you look through the various columns you will find that certain background elements, particularly the first three, are essential to success in any job you might get. Now isn't it just common sense to equip yourself as soon as possible with those skills that will help you to earn a living and move ahead no matter where you may land?

You may not particularly admire the man who goes through life smoothly by shaking hands, writing smart letters and talking glibly, but the fact that it is done so often proves that these abilities have tremendous commercial value. Now your mind is constructive; a comfortable existence as a "hot-air artist" wouldn't satisfy you. You propose to do useful things and know what you are talking about. Fine; you are in line to become a useful citizen! Nevertheless you must add the qualifications of a salesman to fundamental worthiness if you expect to accomplish much, certainly so if you seek the maximum personal return in salary and recognition.

What every salesman has is "ability with people," listed under "General Skills." By this I mean the ability to win the friendly cooperation of all kinds of people, to get along with your boss, your equals and men under you, to get along with those to whom you sell and from whom you buy. No matter what title may be engraved on your business card, you will find that life is largely *selling*.

If the engineer cannot get other people to help him put his sound ideas into action, his technical knowledge has no commercial value and he himself will never be able to hold a good job, regardless of his engineering ability.

When it comes to *writing ability*, I haven't in mind so much the writing of articles as the ability to write business letters, reports and notes that will put the recipient in the right frame of mind and get things done the way you want them done. Bad letters and clumsy reports will get you nowhere fast. *Talking ability*, of course, includes the ability to keep your mouth shut at the right time. It might be defined as the ability to use spoken words (plus discreet silence) to make people think well of you and cooperate with you.

There won't be enough summers between now and your graduation from college for you to get extended experience in all the indicated fields. If you must choose, I suggest that you spend at least one summer in a shop. Be sure to get some greasy job in overalls, running a machine, chipping castings, helping machinists or millwrights, oiling engines or something like that close to nature. Learn how men feel toward a boss, which qualities they like in him and which they don't. Learn how it would be wise for you to behave when you get to be a boss. Begin to get that "shop sense," for the lack of which some smart theoretical engineers suffer.

It would be a good idea to spend one summer in a store. You might work in a hardware store, or you might deliver groceries. This will teach you the simple little things about every-day business, about keeping a lot of details straight and keeping customers satisfied. Most important of all, it will initiate you into the mysteries of salesmanship.

I could keep talking all night on this subject of job preparation, but I haven't the time and I guess you can get the idea from what I have said and from studying the chart. And though you've got some tough years ahead, there will be lots of fun, too, if you go at it right.

Your Uncle

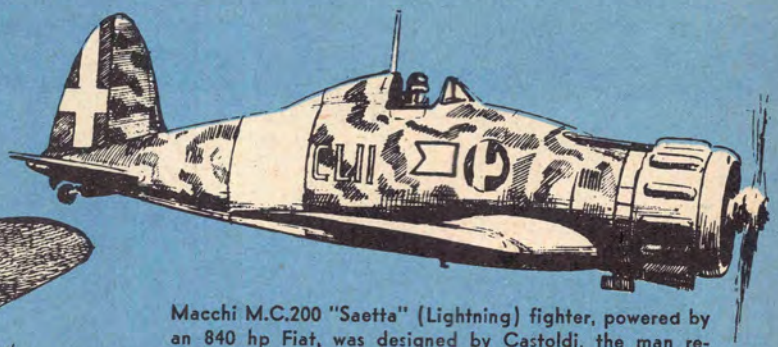
YOUR PREPARATION AND BACKGROUND — YOUR FINAL JOB

		Design	Engineering Selling	Factory (business end)	Factory (engr. end)	Construction	Consulting engineer	Power engineer	Research
General Skills	Ability with people	1	1	1	1	1	1	1	1
	Writing ability	1	1	1	1	1	1	1	1
	Talking ability	1	1	1	1	1	1	1	1
Special Skills	Handling tools	1	2	2	1	1	1	1	1
	Speeches	2	1	1	1	2	1	2	2
	Writing letters	1	1	1	1	1	1	1	1
	Writing reports	1	1	1	1	1	1	1	1
	Bookkeeping	2	1	1	1	1	1	1	2
	Typing	2	2	2	2	2	2	2	2
	Freehand drawing	1	2	2	1	1	1	1	1
Field Experience (Summers)	Shop mechanic	1	2	2	1	2	1	1	1
	Construction	2	2	2	2	1	1	1	2
	Office	1	1	1	1	1	1	1	1
	Selling	1	1	1	1	1	1	1	1
	Drafting	1	2	2	1	1	1	1	1
College Studies	English	1	1	1	1	1	1	1	1
	Physics	1	2	2	1	1	1	1	1
	Chemistry	1	2	2	1	2	1	1	1
	Math	1	2	1	1	1	1	1	1
	Drafting	1	2	2	1	1	1	1	1
	Economics	2	1	1	1	1	1	1	1
	M.E. studies	1	2	2	1	1	1	1	1
	E.E. studies	1	2	2	1	1	1	1	1

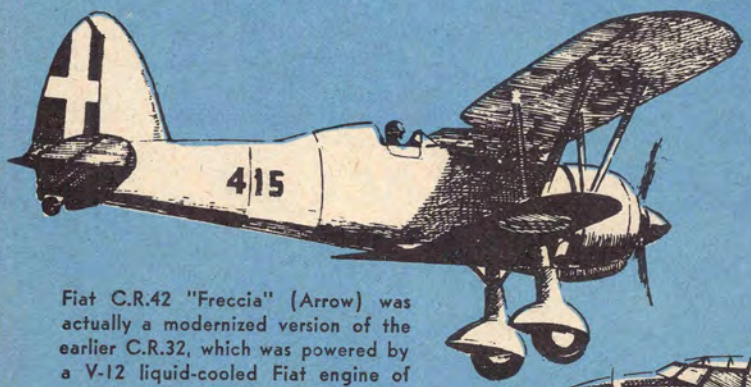
AIR PROGRESS

By Rolfe and Barilani

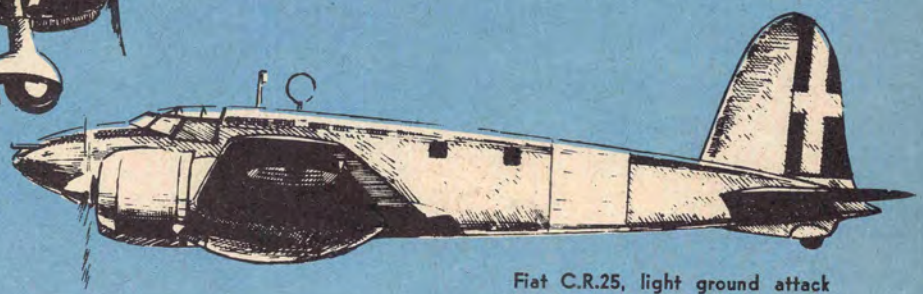
Reggia Aeronautica
ITALIAN AIR FORCE PART II



Macchi M.C.200 "Saetta" (Lightning) fighter, powered by an 840 hp Fiat, was designed by Castoldi, the man responsible for the famous Schneider Cup racers of Italy. Top speed was 305 mph. Later model M.C.202 powered by V-12 engines.



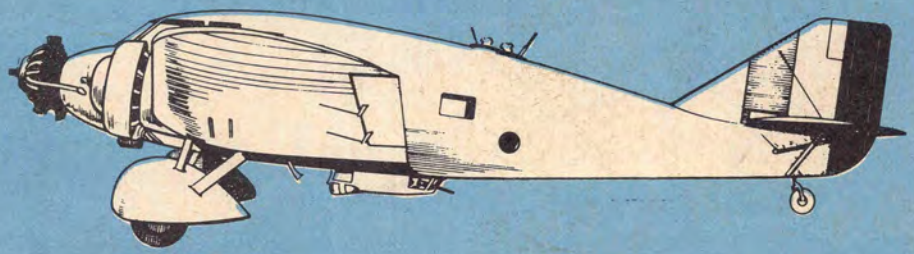
Fiat C.R.42 "Freccia" (Arrow) was actually a modernized version of the earlier C.R.32, which was powered by a V-12 liquid-cooled Fiat engine of 550 hp. The biplane fighters were noted for their "V" interplane struts. Very maneuverable; armament poor.

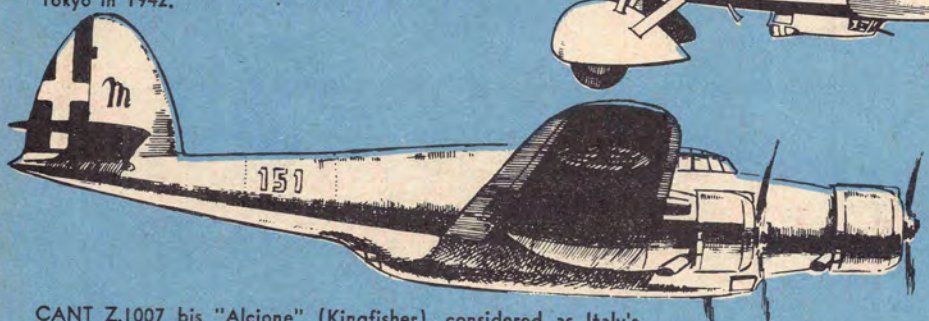




Fiat C.R.25, light ground attack bomber, extensively used against Allied troops in Algeria. Powered by two Fiat radial engines of 840 hp. Armament consisted of two 12.7-mm machine guns in the nose. Bomb load: three 400 lb. bombs. Top speed 276 mph.

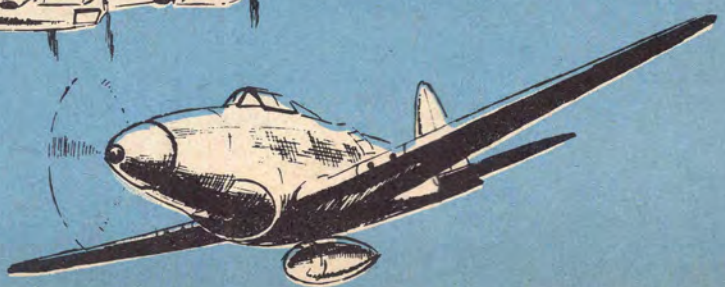
SIAI SM 82 "Marsupiale," largest military air transport of the Italian Air Force. Powered by three 950 hp Alfa-Romeo radial engines. Still in service as paratroop transport. One SM 82 made a nonstop flight of 3825 miles from Rome to Tokyo in 1942.



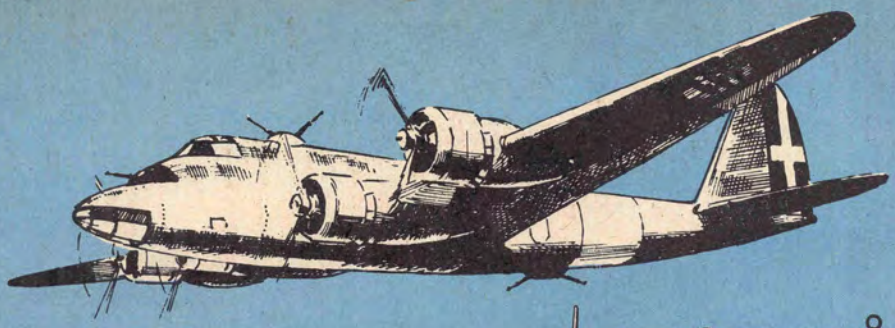


Breda 46 bomber dates back to 1934. Was very similar to the German Junkers Ju. 52/3M. Powered by three Alfa-Romeo Pegasus engines of 650 hp each. Bomb load was 4400 lbs. Four machine guns. Top speed 195 mph.

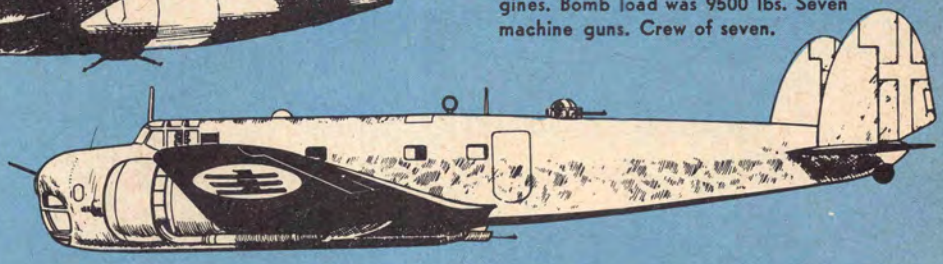
CANT Z.1007 bis "Alcione" (Kingfisher), considered as Italy's best bomber. Active in all theatres of war. Construction was entirely of wood, due to metal shortage. Powered by three Piaggio radials of 1000 hp each. Bomb load 2600 lbs. 310 mph tops.



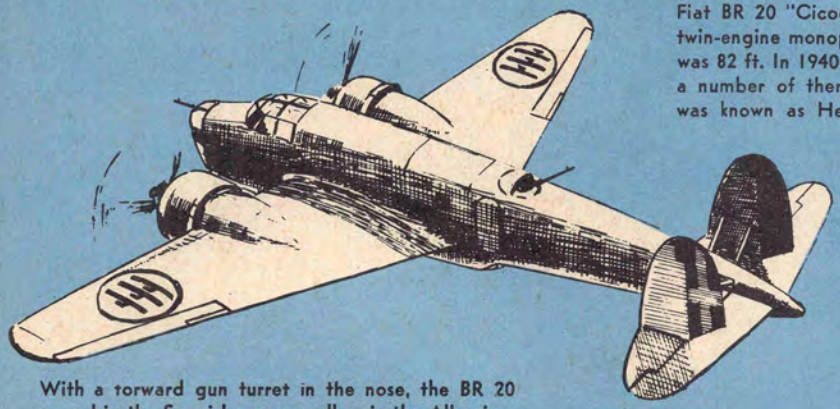
Piaggio P.119. Not unlike our Bell P-39. Had a 1500 hp Piaggio radial air-cooled engine mounted behind the pilot, protected by armor plate. First flown in December 1942, still in test stage at end of war. One 20-mm cannon, four machine guns. Ceiling 39,750 ft.



Piaggio P.108B was Italy's answer to our B-17s. However, the plane never saw military action. One of these aircraft was flown by Bruno Mussolini. Powered by four 1000 hp Piaggio engines. Bomb load was 9500 lbs. Seven machine guns. Crew of seven.

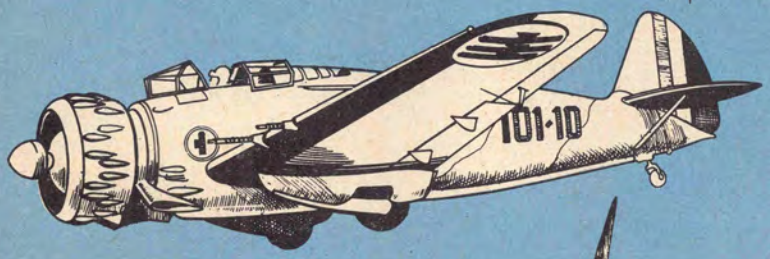


Fiat BR 20 "Cicogna" (Stork) dates back to 1937. It was an all-metal twin-engine monoplane which served as a medium bomber. The wingspan was 82 ft. In 1940 several BR 20s were bought by Japan, which produced a number of them. The Japanese version was built by Mitsubishi and was known as Heavy Bomber Type 1. Italian version: 228 mph tops.



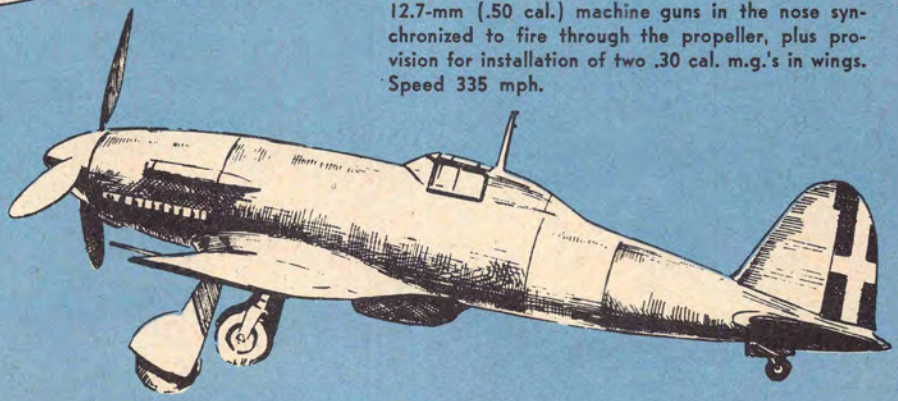
With a torward gun turret in the nose, the BR 20 served in the Spanish war as well as in the Albanian, African and Mediterranean campaigns. Power was supplied by two 18-cyl. Fiat radial engines of 1000 hp each. One m.g. in the nose, one on top of fuselage, one below.



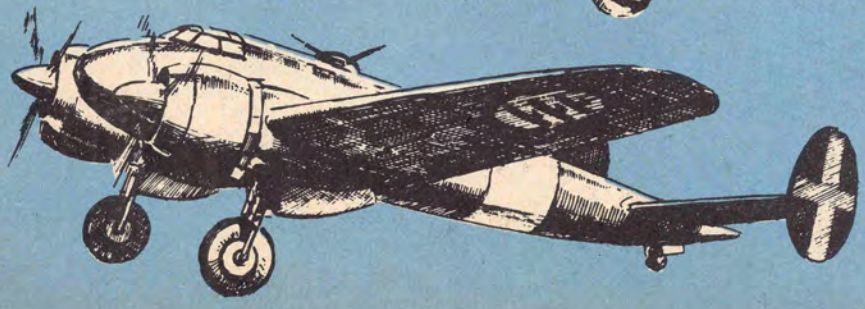


Breda B.A.65, (above) a pre-World War II light ground attack airplane. Used in Libya against Allied tanks. Carried crew of two and was powered by a 1000 hp Fiat radial. Three .50 cal., two .30 cal. m.g.'s. 262 mph.

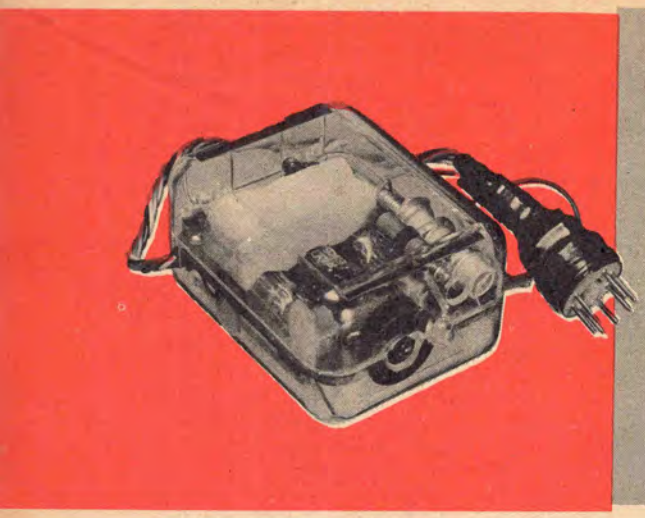
Macchi M.C.202 "Saetta II" was a streamlined version of the 200 series. It was powered by a German-built Daimler-Benz D.B.601 liquid-cooled V-12 engine rated at 1200 hp. Main armament consisted of two 12.7-mm (.50 cal.) machine guns in the nose synchronized to fire through the propeller, plus provision for installation of two .30 cal. m.g.'s in wings. Speed 335 mph.

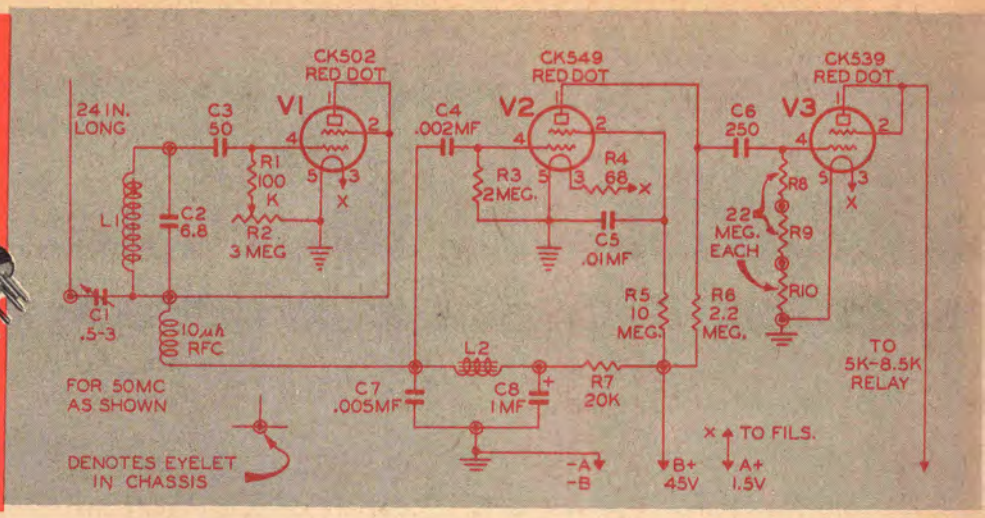


C.A.N.S.A. F.C.20 bis was a comparatively little known airplane as it went into production just at the close of WWII hostilities. It was designed as a tank-destroyer, to mount either a 37-mm or 54-mm cannon, 3 m.g.'s.



Fiat G.55 (above), used 1944-1945 by the Republica Sociale Italiana, which was controlled by the Luftwaffe. Plane powered by Daimler-Benz DB-603, 1300 hp engine. Three 20-mm cannon and three m.g.'s. Speed 385 mph.





Mac III "AES" R/C Receiver

"Mac" means reliability; "III" is for 3-tuber; while the "AES" indicates "advanced experimenter's special"!

By HOWARD G. McENTEE

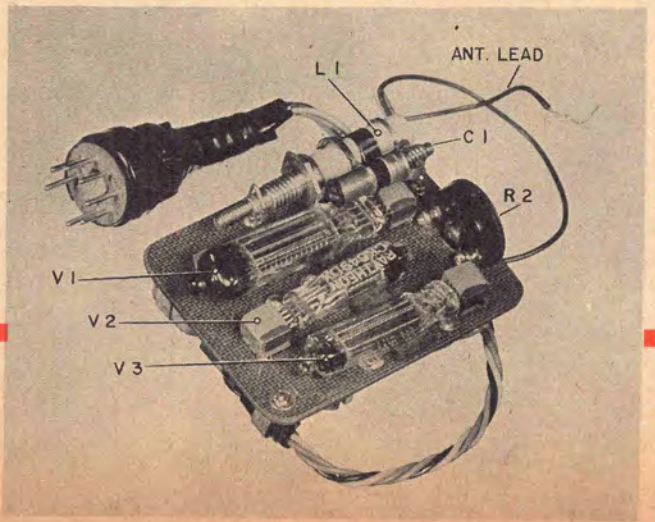
■ One might think from the name "Advanced Experimenter's Special" that this is an extremely complex receiver. It isn't. In light of present-day R/C equipment, with multi-tube receivers quite commonplace, the 3-tuber described here is not too difficult. We have had this one completed and in use for some time. But it is certainly no beginner's outfit, at least from the construction angle. However, quite a few correspondents have asked why ATH didn't print more material for the advanced builder, so here is one for them to chew on.

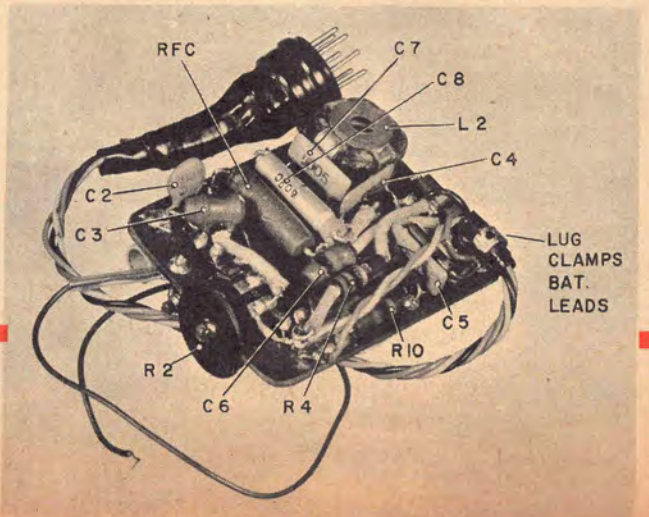
Actually, the set is fairly simple in circuit and easy to get into action. We had a similar one in use for over three years (it is still entirely workable, but has been retired from active flying) and it was the most satisfactory CW receiver (for carrier-only use—with no modulation) that we had ever used. Many long hours were spent on the old set, trying to improve it, but the final circuit is almost exactly the same as the original. We have used different tubes, however, which reduce the A drain and are more readily obtainable.

The present receiver may be used as a basis for other types of receivers; it serves beautifully for reed work, with a couple of slight circuit changes. Other applications—which have not been fully tried out yet—are as the front end of an audio filter or tuned-relay receiver, as a receiver to drive a transistor relay stage, etc. We'll report on these uses in later issues, if they look promising.

When used with straight carrier, this is definitely a low-current receiver, and must be used with a relay that will be happy with one milliampere or so of current change. We have found the Sigma 26F ideal, though the receiver works better with a 5000 ohm relay. The Price and Kurman 5000 ohm relays also work well; the latter was used on the older receiver mentioned previously. As separate relay mounting is getting to be quite the thing nowadays, the set was built less relay, and was condensed into a little plastic case measuring 1¾" x 2¼" x 1 3/16" overall—the same size case that was used for the Mini-50 receiver. Like the latter, the new 3-tuber has been used mainly on 50 mc., but the drawings show the coil to be used on 27¼ mc.

There is a sensitivity control, R2, but it is not critical, and is used mainly to compensate for different tubes at V1, for drops in battery voltage, different antenna lengths, etc. It does not have a sharp setting point, as with the sensitivity control of a single hard-tube receiver. This receiver is nowhere near as sensitive to antenna loading as a single hard-tuber, but does like *light* antenna loading—hence the very small antenna coupling condenser. It can be tuned up near





a transmitter; after you have made preliminary distance checks to satisfy yourself that everything is working right, you will seldom have to make a distance check again; if the set works properly 50 ft. from the transmitter, it will work right at a distance. Tuning is extremely sharp, and again we emphasize that it is quite satisfactory to tune up only 50 ft. from your transmitter, regardless of power used.

As shown here, the set was intended to mount on one end against a bulkhead; therefore the controls are all brought to the other end of the chassis. With the case bottom against 1" of sponge rubber, the latter being against the forward cabin bulkhead, and strips of rubber at bottom and sides, you have a practically crashproof mounting. A single moderately-tight rubber band holds the receiver in its "nest".

The receiver draws about 60 ma. A current on 1½ V., and the total idling B drain is .4 ma. With signal this goes up to about 1.4 ma., when using an 8000 ohm relay. It will work down to about 1.25 V. on the filaments, on 50 mc., and even lower on 27¼, while the B voltage may drop to 40 or so; depending upon the relay and setting you use. V3 idles at .2 ma., and we set the relay to operate at .8 ma. and release at .6 ma.

Though no special parts have been used you will have to employ the smallest ones possible in order to duplicate the receiver shown, so stick closely to the parts list. It's entirely likely that the various radio control suppliers will handle all the parts needed. And don't tackle this rig with a 100 watt soldering iron! What you'll need is a "pencil" iron with a tip ⅛" diameter. Also, 1/32" dia. rosin-core solder is a great help on such a job. Since parts placement is rather critical—from the standpoint of getting the set into the case shown—we have indicated the various eyelets on the chassis drawing, and have marked the circuit with little circles to show where eyelets go.

The sockets were fastened by simply pushing their lugs through the five holes and bending them outward a bit. Some of the West Coast builders put a spot of Walther's "Goo" under these sockets to hold them fast (get it at model R.R. shops). The UTC SSO-5 choke needs some modification to fit in the space available; all the core strips are removed, then four strips of core metal ⅛" wide by 1⅛" long are bent around the coil, one on each side. These strips will have to come from another audio transformer—the ones you take out are not long enough. Of course, the choke will work just as well with all the core left in place, and if you make the set a little larger, may be used just as it comes.

R2 is fastened to the chassis by a loop of wire which goes through the two holes shown and is soldered to the two threaded legs on the control; the knob is removed and a round head screw inserted—with a speck of cement on the threads—so that the control may be adjusted by screwdriver.

L1 is held onto the chassis by passing the two clip ends through eyelets, while C1 is soldered directly to L1 and to the antenna eyelet.

When wiring up, check and double check each part before you fasten it in place. It is not too hard to put the parts in and solder the leads, but it's a lot tougher to get them out again, if you make a mistake!

When all is ready for the first test, hook up about 1½ ft. of antenna, turn C1 to minimum capacity and R2 to about half resistance. With all tubes in place and a 5000 ohm relay, you should get a total receiver idling current of about .4 ma.; turn R2 for this current, then try the set with a weak signal. The relay might make a harsh hissing sound, when no signal is coming in, and the plate current will vary a bit—about .1 ma. at most, and preferably no more than .05 ma. If lower than this, increase the antenna condenser to make the set a little "hotter," then increase the resistance of R2 to bring the idling current back to .4 ma. If you hear a singing sound as a signal is tuned in and out, it is a sure sign that you have too much antenna coupling, or too long an antenna.

Like many hard tube receivers, this one is rather sensitive to RF noise in the model. Note the small condenser on the relay contacts; it is only needed on one side, the contact that is *closed with no signal*. Of course, the usual arc suppressors should also be used on the relay points that are utilized in your control system. When the receiver was first installed in a plane which had previously been flown with a single hard-tuber, the former noise suppression system—consisting of the usual series condensers and resistors across the relay points—was found to be insufficient. The plane was equipped with a "Mactuator," a unit that is very efficient but gives a heavy inductive kick when the relay points are opened. After trying various other suppression methods, the simple arrangement shown was adopted and cured the problem completely.

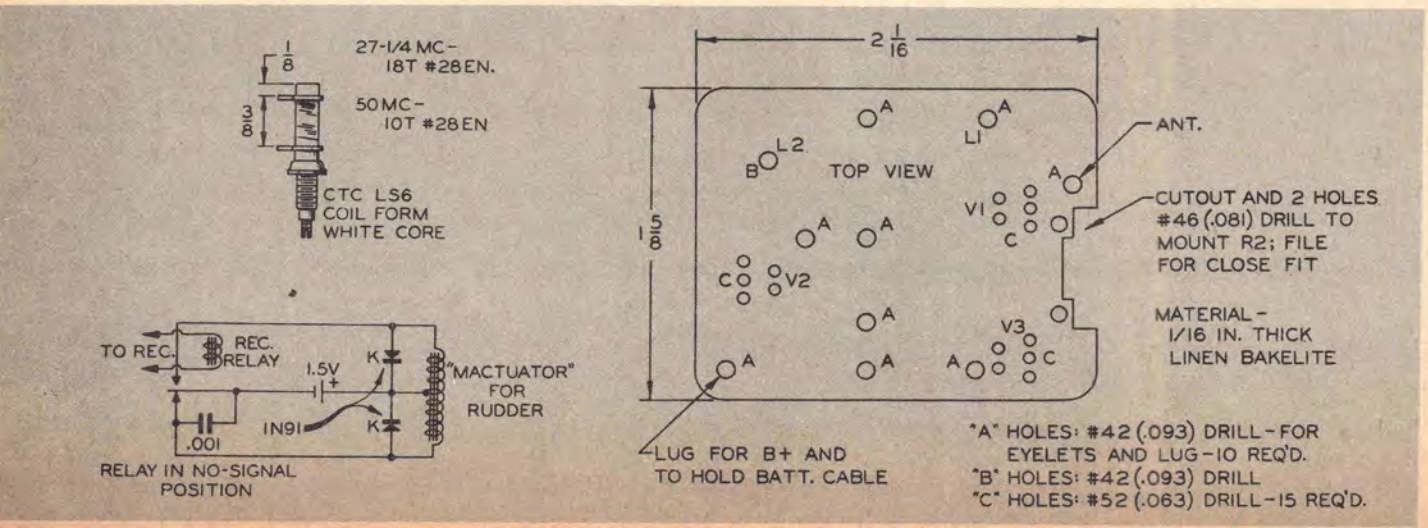
Note that the 1N91 diodes specified were the only ones of quite a few we tried that would do the job; also, that they are connected "backwards" with respect to the battery—no battery current flows through them. The diodes were placed right at the actuator connection lugs. A small condenser is still needed across the contacts of the relay that are closed with no signal; it may be as small as 100 mmf., and is simply an RF bypass.

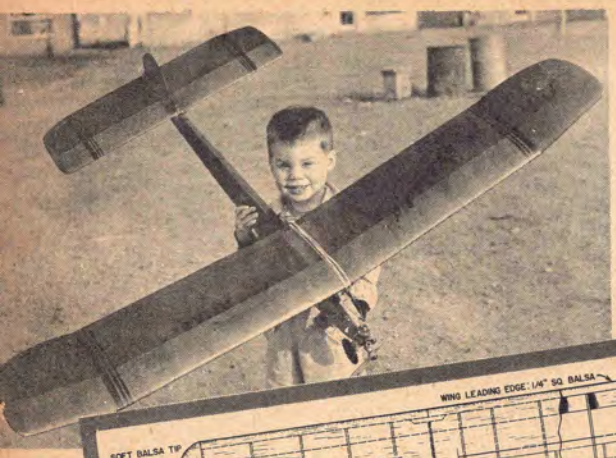
For use on 27¼ mc., L1 should be wound as shown, C1 changed to at least a 1-7 mmf. trimmer, RFC raised to 200 microhenries, and C2 raised to 10 or 12 mmf. All other components may remain as indicated. The current change in V3 will be about the same as noted for 50 mc use, while V1 and V2 together will draw .2-.25 ma., as they do on 50 mc.

The receiver may be used for reed operation on either 27¼ or 50 mc. by making the changes appropriate to either band, and in addition, substituting a .001 mf. condenser at C6 and a single 2.2 meg. resistor for the three series resistors (R8, R9 and R10) at the grid of V3. Of course, the relay coil would be substituted for the relay shown in the plate circuit of V3. We would suggest that R2 be retained in a reed receiver, but once set it will seldom have to be changed.

It seems entirely possible that this basic receiver could be altered to operate on audio tone, along the lines of the WAG receiver described in the May 1954 issue of ATH; and as a final idea—the receiver could be used with the tuned-relay output stages of the Juenke-Bonner receiver from the May 1955 issue. All these arrangements would require a bit

(Continued on page 63)

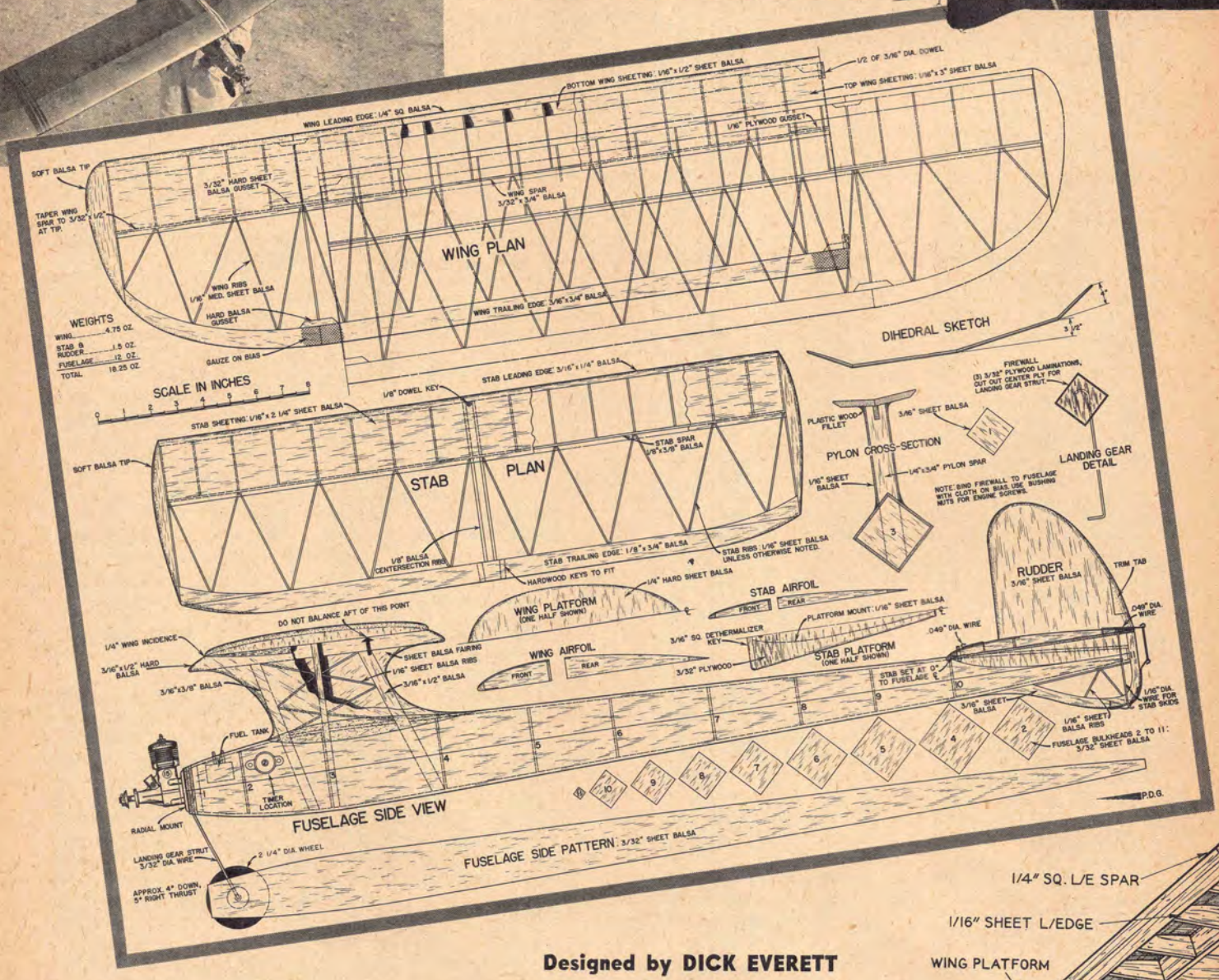




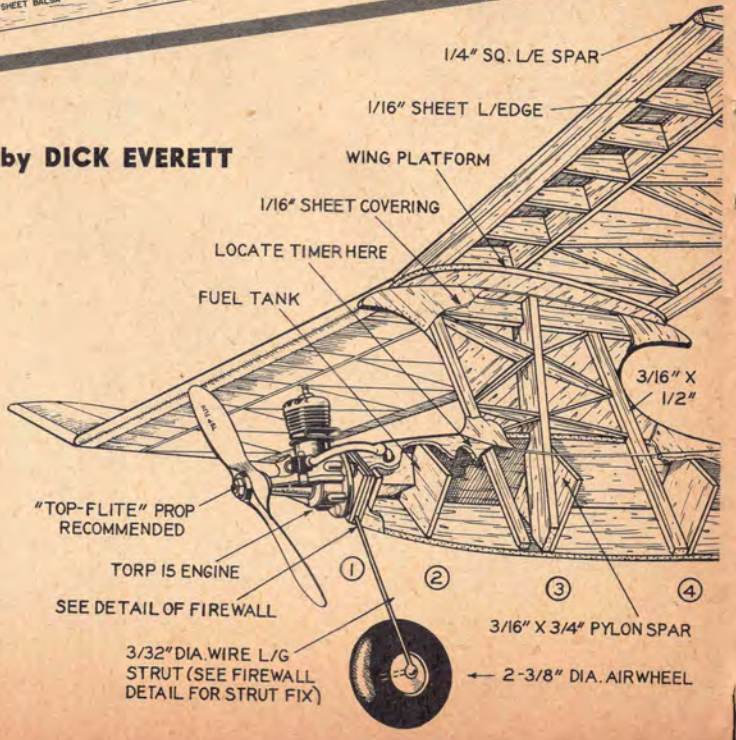
"El Promedio"

A FREE FLIGHT PLANE FOR .15 cu. in. DISP. ENGINES





Designed by DICK EVERETT

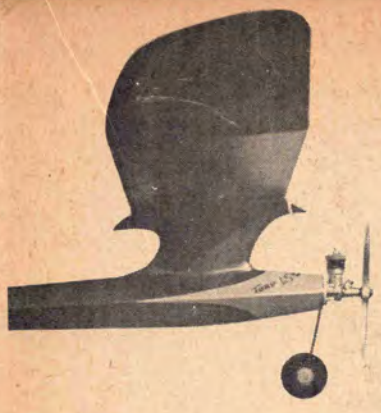


■ When it became apparent that the FAI-type of free flight competition model plane was becoming a permanent fixture on the American contest scene, ATH commissioned California's Dick Everett to conduct a designer's survey to determine what the "All American 15" would look like. Here's Dick's report and the "averaged-out" airplane.

"It is difficult to sum up our extensive findings," observes Dick, "because there is more variance of opinion on what a .15 gas job should look like than even with Wakefield models. However, we finally briefed everything down in chart form (as shown) and from that developed a pretty accurate idea of what each designer had in mind at the time of our survey.

"Incidentally, I want to express my heartfelt appreciation to the fellows who helped us out here—especially Lew Mahieu, Sal Taibi, Dr. Stan Hill, Paul Gilliam, Denny Davis and Jack Oxley.

"After averaging the data we went a little further and



	TOTAL AREA	WING	ASPECT RATIO	AIRFOIL	STAB.	% STAB.	SECTION	FUSELAGE	NOSE MOMENT	TAIL MOMENT	RUDDER	CENTER GRAVITY	POWER	PROP.	WEIGHT	LANDING GEAR	TAKE-OFF
MAHIEU	650	480		Flat	170	35	Sym.	40	8.95	26.7	3%	70%	Torp	8x4	18.8	1 wh.	Norm.
TAIBI	572	432		Flat	140	34.7	Flat	40	9.00	26.5	4.4%	—	"	—	17.5	"	"
HILL	550	400	9:1	4612	150	37.5	10%	"	—	—	—	—	"	—	—	"	Vert.
GILLIAM	539	385	6:1	G-5	154	40.0	6%	35	—	27.5	4%	95%	"	8x4	17.5	"	Norm.
DAVIS	584	400	9:1	Flat	184	40.6	6%	40	6.00	27.5	4%	77%	"	7½x4	17.5	"	"
OXLEY	500	375	7.5:1	Flat	125	33	6%	36	6.25	25.5	4%	80%	"	8x4	17.5	"	"
Av.	566	412	7:1	Flat	155	37.6	6%	38		26.3			Torp	8x4	18.0		Norm.

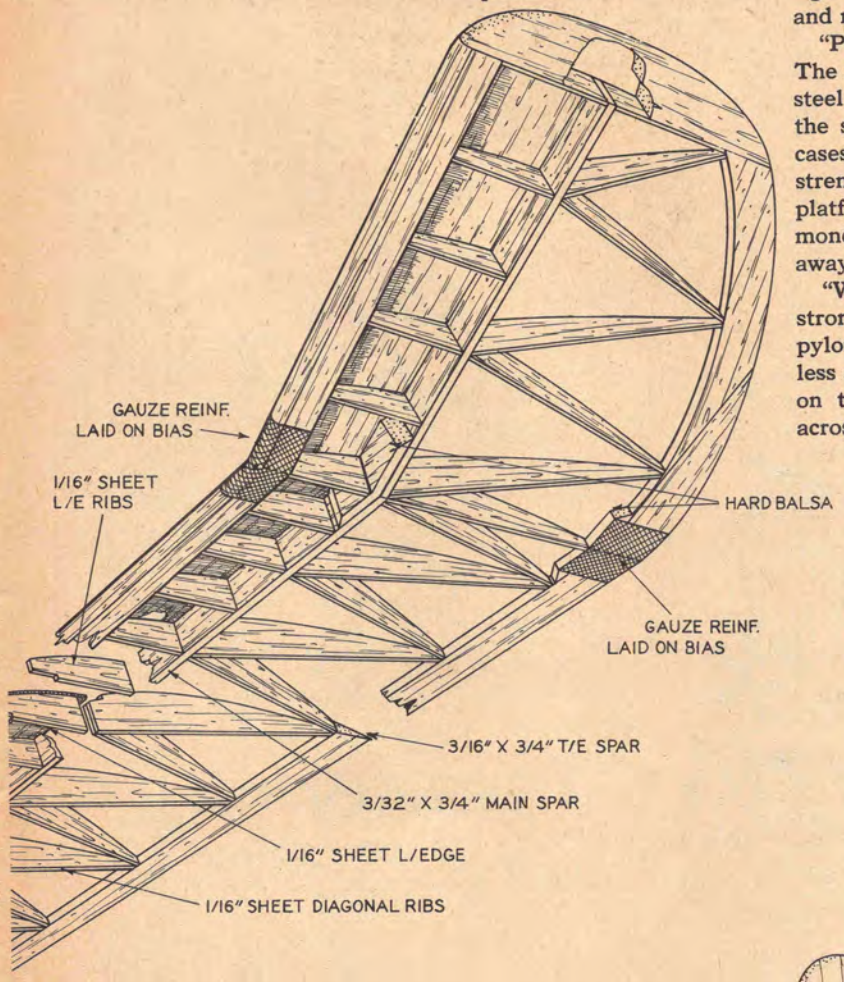
Dick interviewed six famous West Coast model competitors, then averaged out their ideas and came up with this design.

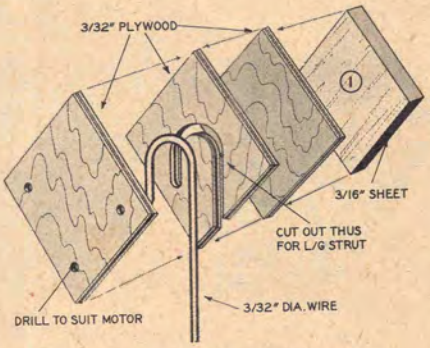
built a model to these specs—the results were amazing. This ship is by far the best we have ever had; its stability under power and glide leaves little to be desired. It will fly under power to the left if you like, it will fly to the right—there just doesn't seem to be any stability lacking—and note this is with a wing and tail free from warps.

"Particular care has been put into construction design. The full depth spars have paid off to the extent that hitting steel fence posts did no more than crush the leading edge; the ship was back in the air in fifteen minutes. In some cases it might seem that we have gone overboard for strength but we felt it was needed. The small pylon tail platform has eliminated that one weak spot in most diamond fuselages: the point where two sides are usually cut away to mount the stab.

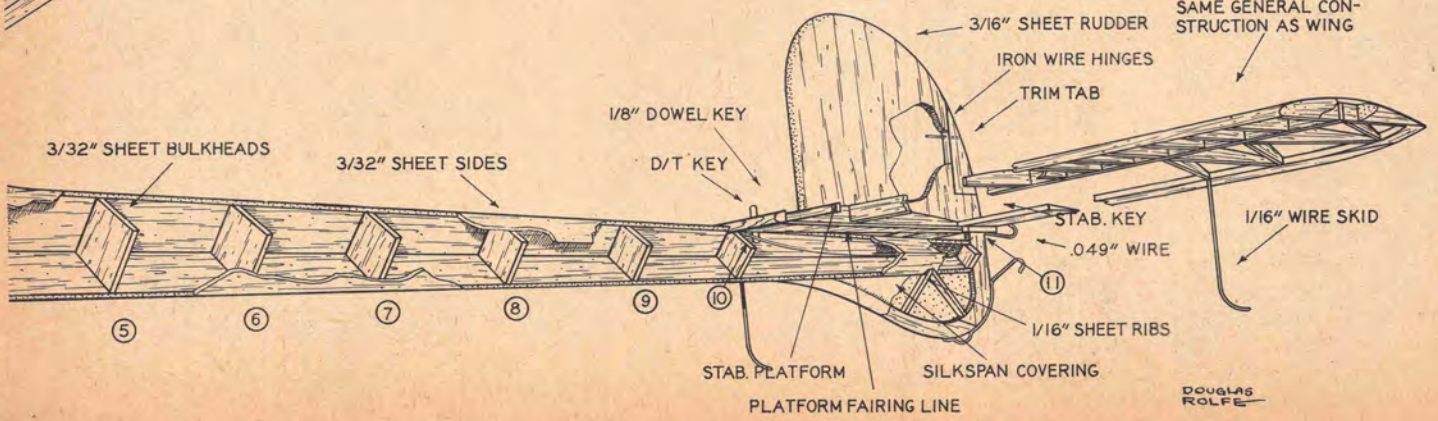
"While we didn't go overboard in the matter—good strong light wood should be used, especially aft of the pylon. Keep the total weight down to that listed or even less and above all do not balance aft of the place indicated on the drawing. The side thrust indicated is measured across an 8 inch prop with a piece of ⅛ x ¼ x 36" to the

(Continued from page 75)

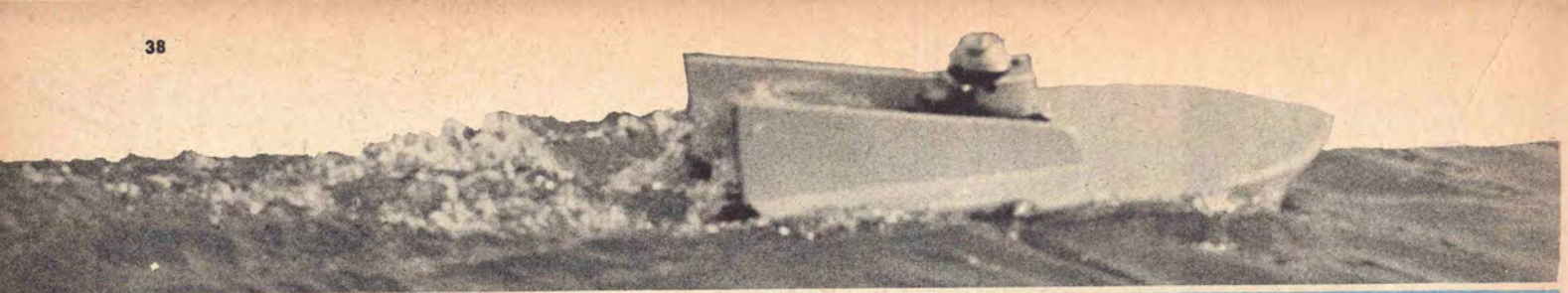


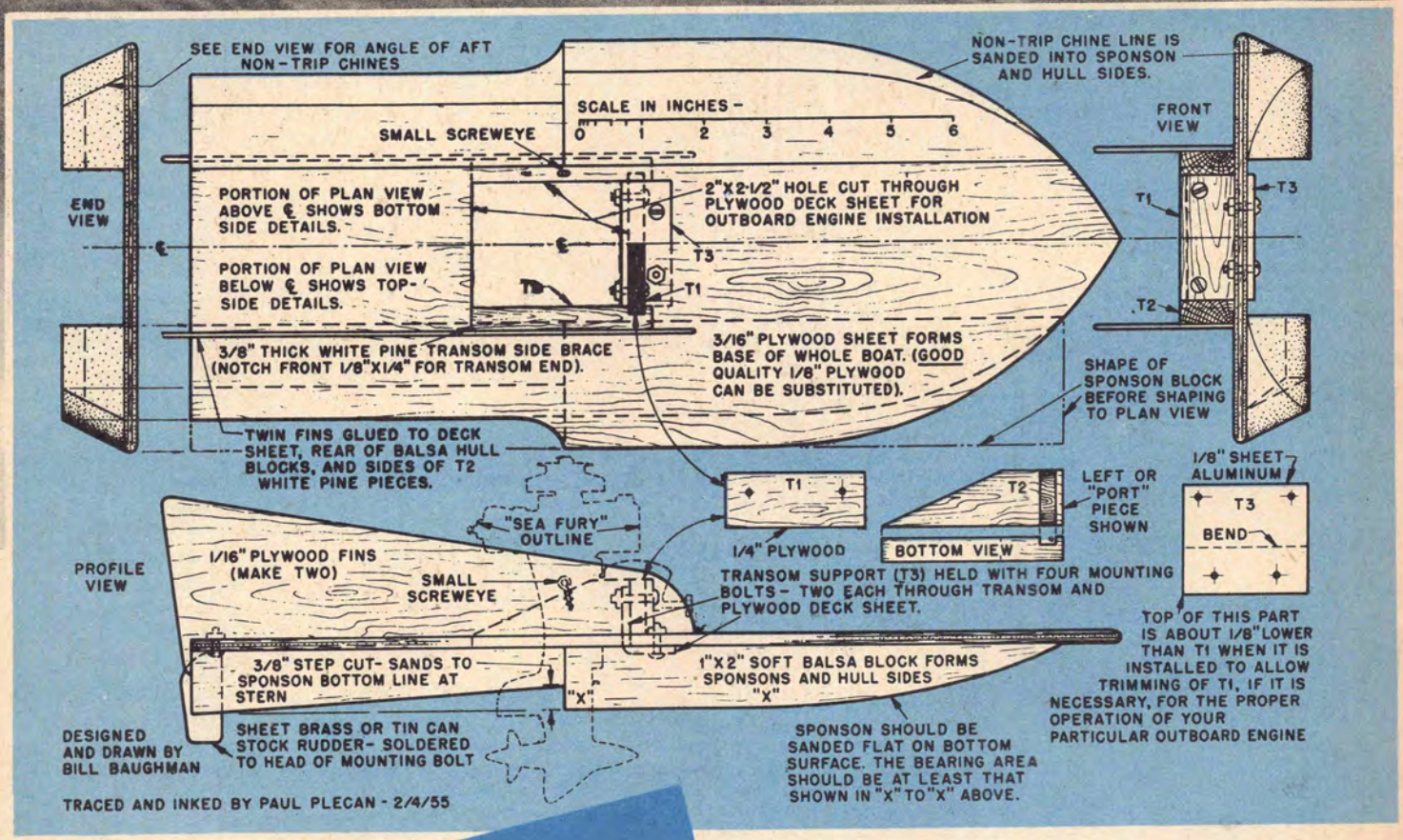


DETAIL OF FIREWALL AND L/G STRUT ASSEMBLY



DOUGLAS ROLFE







Says Davy Jones: ***"THIS IS SENSATIONAL!"***

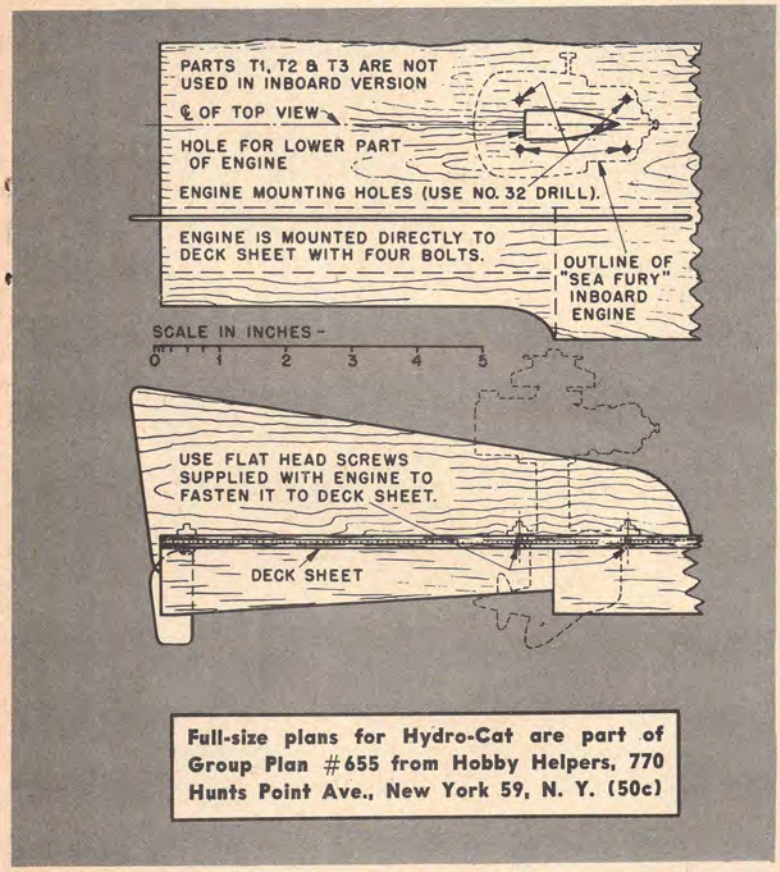
Inboard-Outboard Catamaran-Hydroplane

"Hydro-Cat"

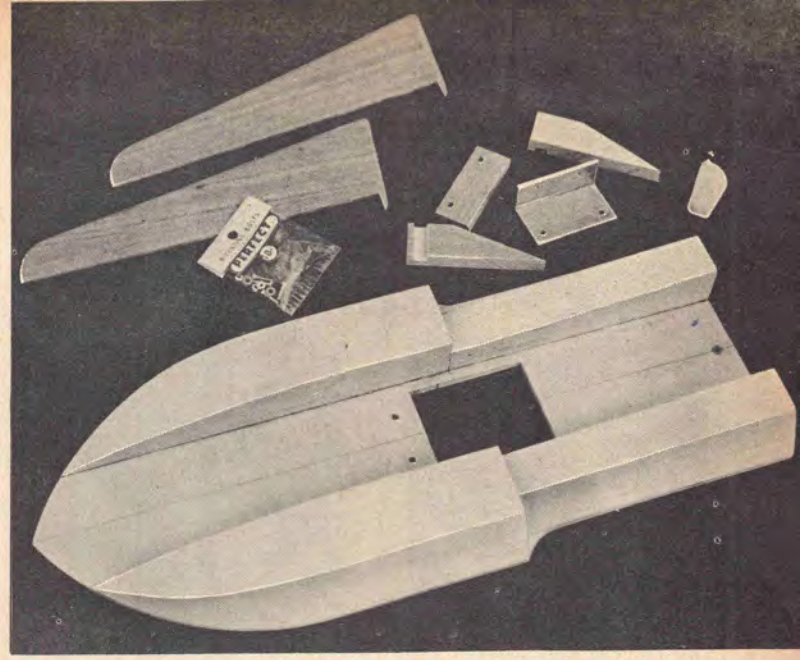
By BILL BAUGHMAN

So. Calif. Model Power Boat & Yacht Assoc.

Designed to mount a glow plug outboard engine in an inboard position, H-C also takes new inboard-mount

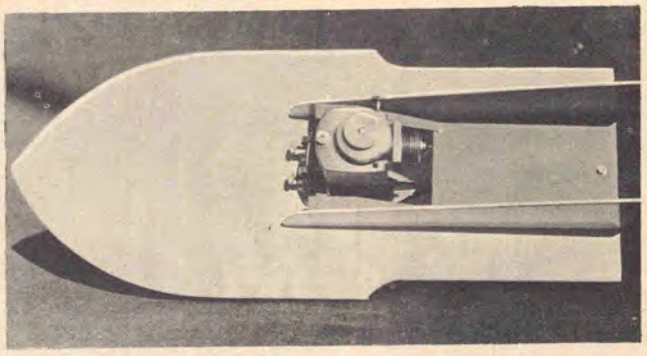


Full-size plans for Hydro-Cat are part of Group Plan #655 from Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. (50c)



At final assembly stage, balsa blocks have been cut and sanded to shape. Fins, rudder and transom parts are ready for gluing.

With water rudder set for slight right-hand turn, "Hydro-Cat" is set to go. Boat has very little wetted surface when under way.



■ Now that everyone has built and run model outboards which are copies of the big ones, we thought some original model design experimenting might be fun. Selecting the main problem of the model outboard—balance and running trim without the addition of lots of excess weight—and studying it over a bit, we hit on the *Hydro-Cat*. This is an inboard-outboard catamaran-hydroplane —if such a thing is possible!! Stranger yet, it works and construction is absolute minimum.

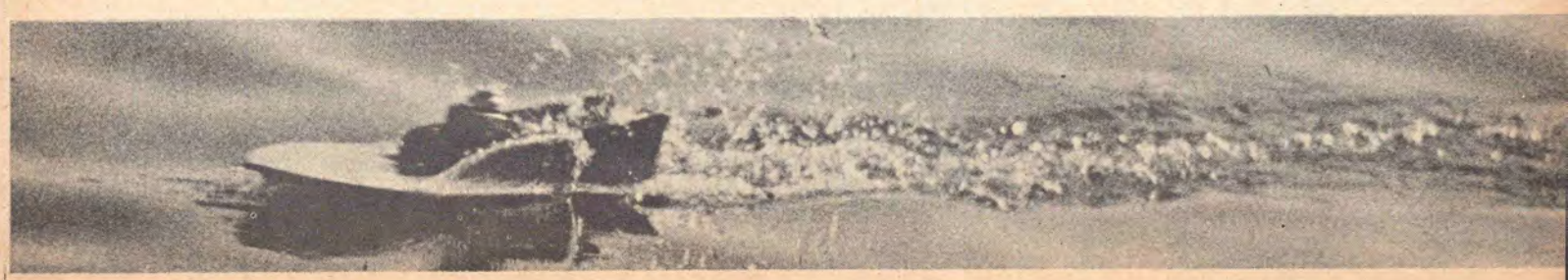
If you use the "Hobby Helpers" plans you will have full-size dimensions from which to work. As a starting point, trace top view outline on 3/16" plywood sheet and mark the motor well location also. Use a jigsaw or coping saw to cut out the basic hull shape and motor well. In the case of the well, it is necessary first to drill a hole in the area to be cut out, disconnect saw blade, insert same through drilled hole, connect saw blade once more, and then make cut-out. Sand all edges smooth.

Cut two pieces of the 1" x 2" soft balsa block stock 15" long. Mark the step location, bow rise, step to stern bottom and side lines on both blocks; rough-saw-cut block at these lines, making sure you have a right and left block when finished. At this point, if you care to, these blocks can be carefully hollowed out from top to about a ¼" side and bottom wall, taking into consideration the curve at the bow. This will lighten the craft considerably and give a little more speed; however, the boat will still give a good account of itself without this lightening process. Fasten both blocks to 3/16" hull sheet with good grade of fuel-proof cement. When dry, carefully sand the balsa blocks to plan shape; round top outer edges of hull sheet.

Cut ¼" plywood transom (T1), transom side braces (T2) from ⅜" white pine, or equal, bend transom brace (T3) from ⅛" aluminum sheet. Drill the transom, transom brace, and hull sheet at positions shown, not forgetting the rudder post as well. Weldwood glue is used to fasten all wood transom parts together and to hull sheet per plan. If available, use C clamps in this operation to assure a good tight joint. When set up, and before glue hardens, bolt the aluminum anchor in position with 3-48 mounting bolts and washers; this will assure proper alignment of all bolts and bolt holes. After glue dries, the aluminum mount anchor should be removed temporarily so all wood parts will receive proper finish.

The two 1/16" plywood fins and rudder complete actual construction. Trace fin pattern from plan and make the two fins; using Weldwood glue on bottom edge of fins and sides of transom side braces, glue fins in position. The rudder

(Continued from page 55)



ASK ANY EXPERT! IT'S THE FINISH THAT COUNTS! PART VI





AUTHOR HOLLINGER (above) and (right) his K. & B. "29" powered stunter weighing 26 oz. The fuselage is a combination of sheet and hollowed balsa construction. One coat clear dope over balsa, then covered with wet Silkspan. One more coat clear followed by three coats auto primer, wet sanding last coat. Five coats of metallic blue were then sprayed on, wet sanding with #360 wet/dry up to last coat. Masked, one coat clear and one light grey primer applied, then four orange. Rubbing compound, then waxing.



HOW I FINISH MY MODELS

Here's one of America's top model designers with dozens of helpful tips on how to turn out better looking jobs

By CHUCK HOLLINGER

■ Whereas the old saying "they all look the same after a crack-up" is probably true, we can also state that the care taken while constructing and finishing our models is definitely reflected in not only their appearance, but aerodynamic alignment and balance as well.

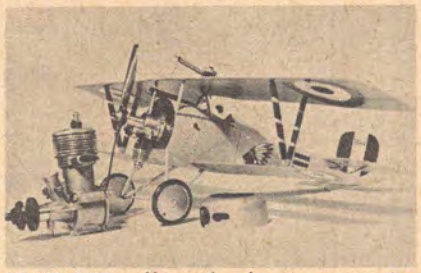
In my book this fact alone justifies the slight extra time it takes to turn out a better model. Of course each type of plane requires a slightly different approach to the finish, as the captions under the photos will show. In addition we have a few more notes to pass on for what they're worth.

First of all the final finish of a model is only as good as its covering, and this in turn is no better than the structure underneath, so be generous with the sandpaper. Incidentally, garnet paper is far superior to regular sandpaper and should be used for all "dry" sanding. Remove all bumps and spots of surplus glue before beginning to cover.

While you may be tempted not to do so, always cover all sheet surfaces, cowlings, pants, and exposed wood areas with paper. There is a lacquer base glazing putty, sometimes called plastic body solder, on the market that is great for fillets on solid scales, control-line scales, or even dents on any kind of model. When purchasing auto-primer specify light grey, since anything darker requires too many coats to cover if light colors are used.



FUSELAGE of my K-"Bee" Half-A sport free-flight is completely formed from 1/16" curled sheets. Rudders are cut from sheet, whereas the stabilizer and wing are built-up. The wing and tail are covered with light tissue, using clear dope as the adhesive. Fuselage covering, however, was applied with a "non-warp" mixture of clear lacquer plus 10% cement. One coat of clear lacquer followed by two coats of auto primer. Last coat wet sanded. Two coats (gold powder and clear dope) sprayed, masked, then 2 of blue.



SMALL SIZE allowed sheet construction throughout. Model was tissue covered and given one coat clear dope plus three coats primer-talc mixture, last coat wet-sanded. Four coats butyrate cream sprayed on fuselage, stabilizer, and top of wings. Underside of wings two coats of aluminum. Cowl was turned from block of hard balsa on electric motor. Lacing was simulated with black dope in ruling pen. Indian head was hand painted onto clear decal, cut out and applied. Size comparison can be noted from bigger engine.



FLEET PT-6 scale was given minimum finish. Silkspan covered overall and two coats nitrate dope brushed on. It's better to brush rather than spray first two coats on any model. Two coats primer sprayed, last coat wet sanded. This was followed by about four spray coats yellow on wings and stabilizer. Wings were finished separately. Fuselage, rudder and wing struts sprayed three coats blue. Stripe masked with strips of cellophane Scotch Tape and hand doped. Two coats Aero-Glass clear sprayed, rubbed.



BREWSTER BERMUDA rubber-power scale has cowling and upper part of fuselage from windshield forward of sheet covering. Remaining portion of fuselage is former-stringer type of construction to keep weight aft of wing to a minimum—"a must." Jap tissue was applied dry and then sprayed with water. After drying, two thin coats of clear dope were applied. Model was doped completely with three coats of "sand." Next the outlines then 3 coats of "spinach" were brushed on. The underside was doped sky blue.



RUBBER POWER sport free-flight is a model with a 30" wingspan and weight ready to fly of 1½ ozs. As with the majority of rubber jobs it was covered dry with Jap tissue, then lightly sprayed with water. To keep light structures from warping a 50/50 mixture of clear dope and clear lacquer works satisfactorily. Four thin coats of this mixture on wing and tail surfaces makes them airtight. The fuselage was given one coat of regular clear dope followed by four of thinned black. Prop is tissue covered, clear doped, colored.



BUHL BULL PUP Half-A scale free flight model originally designed and finished as rubber power scale; later converted to engine power. Cub .049 is "built-in" to scale motor, giving model big plane appearance. Fuselage is formed from sheet by doping inside surfaces. This curls sheet and is controlled by repeating number of coats over areas that need extra bending. On really "stubborn" sections take a damp rag and rub on the outer side. Fuselage covered with Jap tissue, using clear lacquer as adhesive. Finish has 7 coats.

A note about spraying: You don't have to own a compressor, as small touch-up spray guns are available, and one way to use them is by hooking up to the spare tire after it has been inflated to 40-45 lbs. pressure. The "B" stunt and Buhl Pup were sprayed in this way. Another system used successfully is to connect the small spray gun to a tire pump that is operated by foot. The Nieuport 17, Fleet Bipe, K-"Bee" and numerous other models received this treatment.

The best edge for masking is had by laying a piece of cellophane tape onto a sheet of heavy wax paper or scrap celluloid, cutting strips with a razor blade and a guide, then using the cut edge to mask with, instead of the normal side of the tape. Warning: Never use cellophane tape to mask light tissue covered models as it is prone to take some of the tissue with it when peeled off! Incidentally, you'll get a smoother edge by handling regular masking tape in the same way.

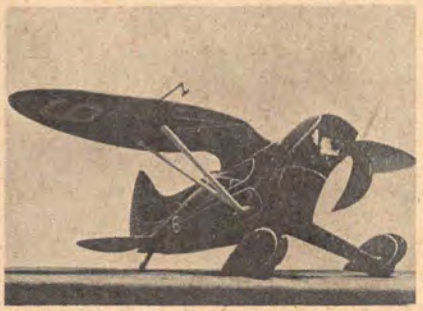
Another system of masking that I have tried several times was to take some wrapping tissue, cut to shape, apply one coat of rubber cement to it, one coat to the model, then place the tissue pattern onto the model, and rub all excess rubber cement off; spray and remove paper. The K-"Bee" was masked by this method.

Windshields, canopies, etc. seem to separate the "men from the boys," so to speak. A system that worked well on the Cub windshield was to first get a piece of fairly thick paper and by the cut and try method make this into the exact pattern desired, adding ¼" to the two sides. This in turn was traced onto a sheet of .020" aluminum which was bent to the desired shape. The paper pattern was then used to scribe the outline onto a sheet of .020" celluloid and cut out. This was bent around the aluminum form, held in place with clothes pins and put into the oven for five minutes at 175 deg. (Time and temperature will vary of course with type of plastic or celluloid used.)

Remove from oven, let cool, then unclip from form. Windshield "tacked" at corners with spot of cement, then thin strips of masking tape are applied along edges allowing 1/32" of celluloid exposed. Mask the fuselage in the same way, then brush on several thinned coats of cement and remove tape. By masking in this way a neat edge is achieved. A strip of appropriately doped tape applied over the joint finishes the job.

While fiber-glassing can't exactly be classified as a part of finishing, it nevertheless is important to the operation of seaplanes. To fiber-glass a prop, first sand the forward side with 4/0 garnet paper to give a "tooth" to the surface. Cut out a piece of glass cloth (on the bias) with an extra inch allowance all around. Mix approximately ten drops of catalyst per ounce of resin, apply with brush to prop, then lay cloth on and form to contour.

(Continued on page 85)



SINCE THIS Hall Racer control-line scale model was designed for level flight only, weight was not a factor, so we gave her the "works." The fuselage was carved from solid balsa and hollowed. The wing was built-up. Drilled hole in cowl block for press-fit to shaft of small electric motor, cemented, then turned. Complete airplane except pine wing struts covered with tissue. Three coats clear nitrate dope with light sanding after third coat. This was followed by eight coats grey auto primer, wet sanding with #320 wet/dry paper. Ten very thin coats of vermillion auto lacquer brushed overall, using water and 400 A wet/dry paper up to last coat. Model then masked and four coats black lacquer applied.



F. A. I. FREE FLIGHT model has 60" wingspan and weighs 18 oz. Diagonal bracing used throughout wing and stabilizer to discourage warps and resist twisting at high speeds. Fuselage is sheet construction and diamond in cross section. Complete model covered with Silkspan and given three coats clear nitrate dope. Leading edge trim, fuselage, pylon, and rudder two coats white dope; wet sanded and followed by one sprayed coat of "flame orange" (fluorescent lacquer). Black pin stripe separation applied with ruling pen. First coat of fuel-proofer was "fogged" on the fillet areas. This is very important whenever any butyrate dope is applied over regular dope or lacquers.



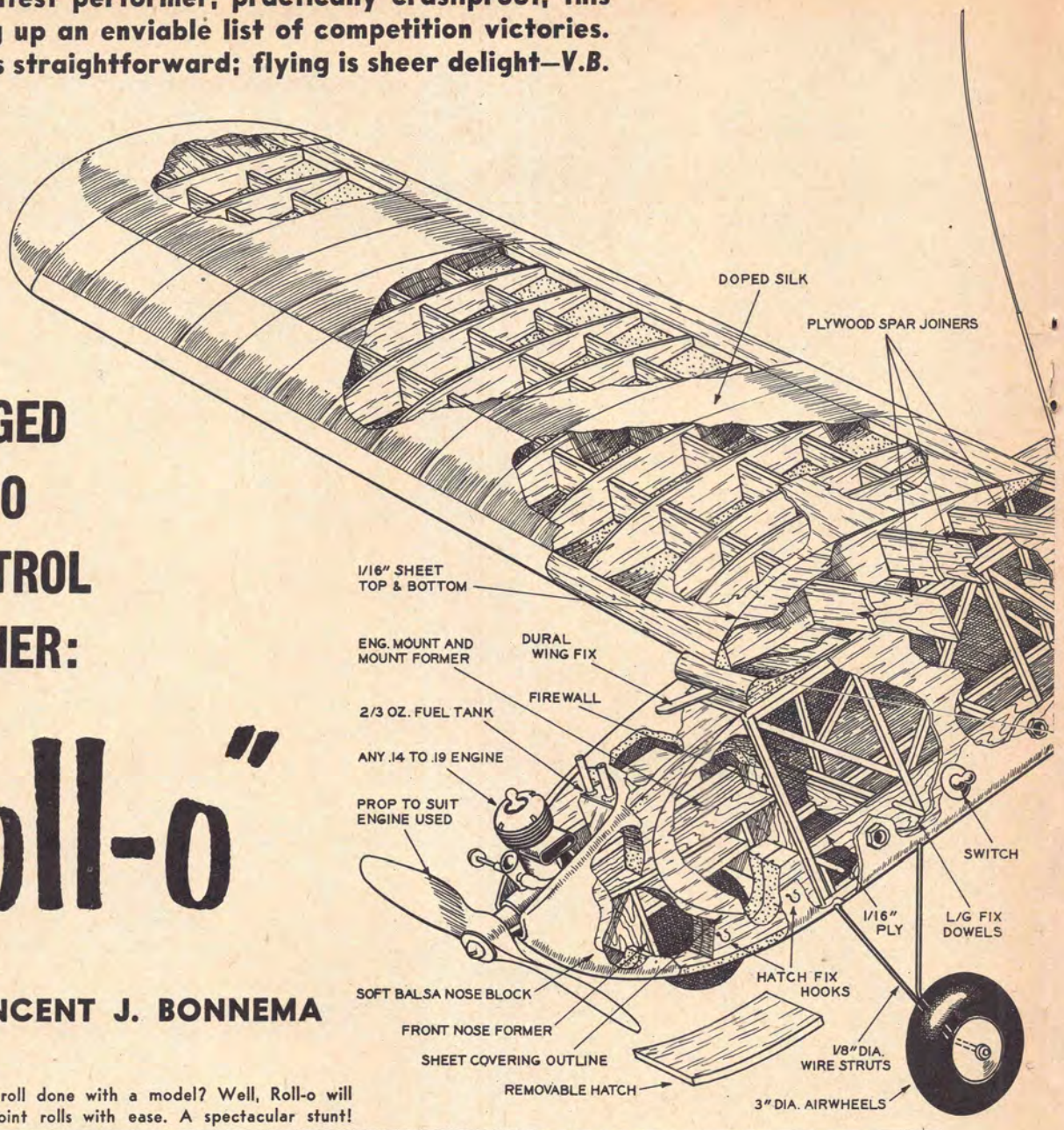
PIPER CUB R/C scale: a model this size and weight requires a fairly durable type of covering, and this meant either silk or Nylon. Well, that's fine until you begin doping, at which time it is discovered that the similarity between doping Nylon and a screen door is striking! The solution to this was to cover over the undoped Nylon with Jap tissue. Light Silkspan or Skysail may be used also; however, they should be applied wet, sticking them down only around the edges. The tail surfaces were double tissue covered—no Nylon. This has proven adequate. Three coats of clear dope brushed on and followed by three more coats of auto-primer talc mixture sprayed on and wet sanded, formed the undercoat.

Consistent contest performer, practically crashproof, this plane has hung up an enviable list of competition victories. Construction is straightforward; flying is sheer delight—*V.B.*

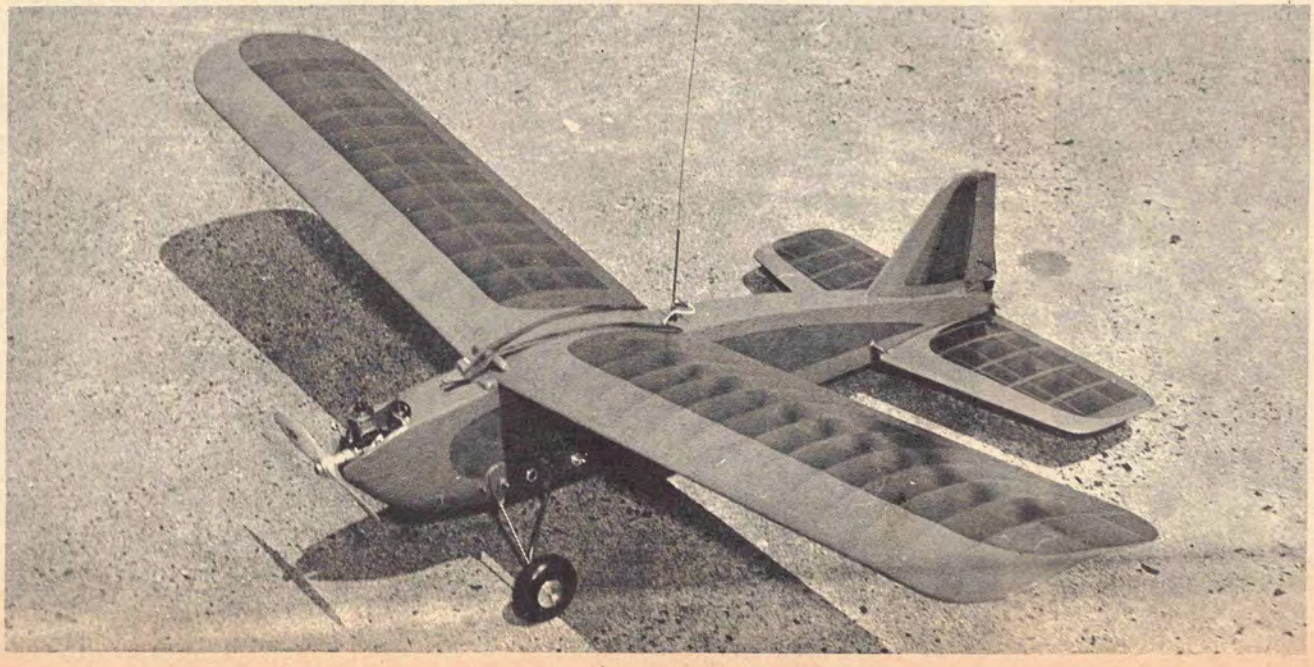
RUGGED RADIO CONTROL WINNER:

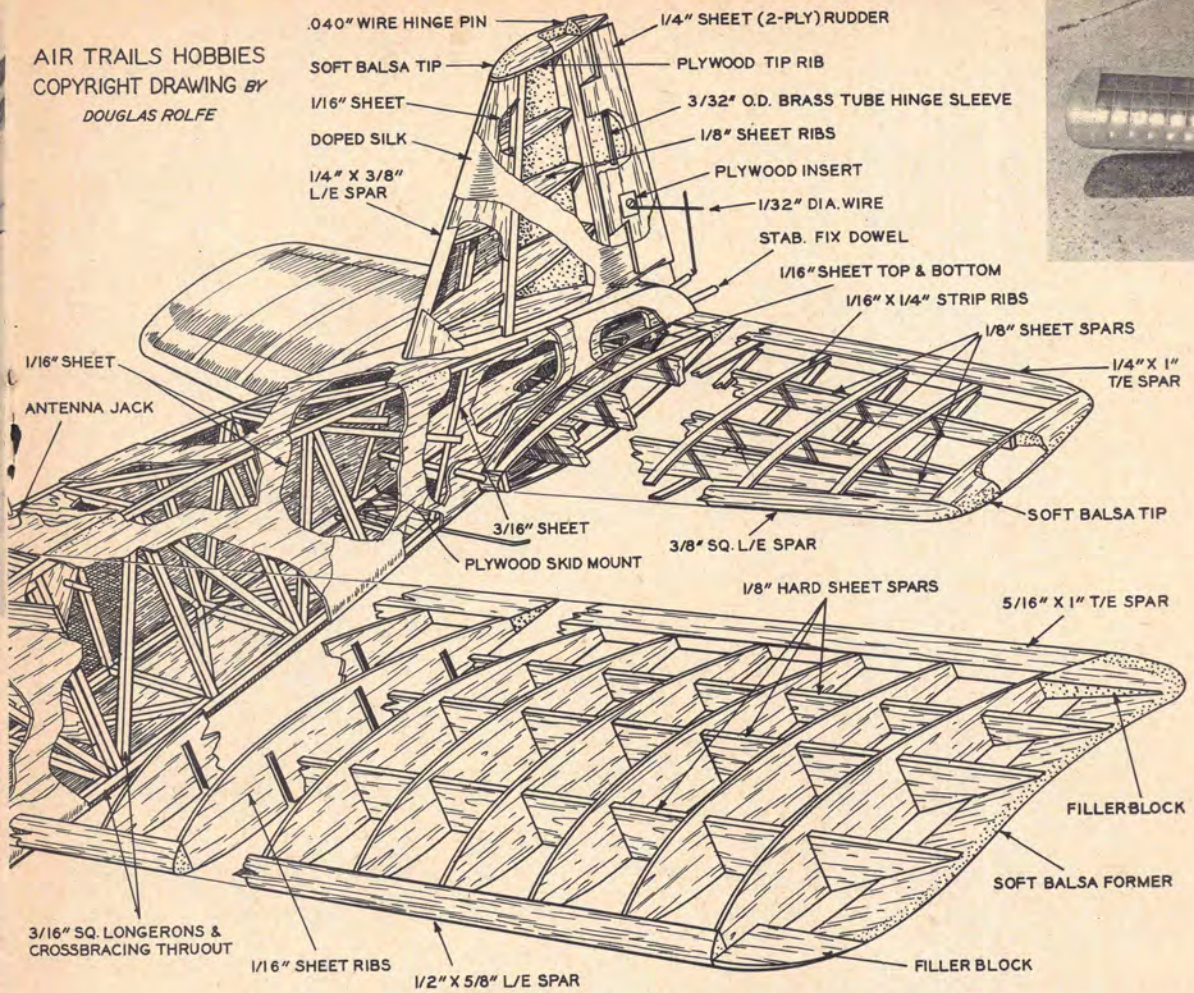
"Roll-o"

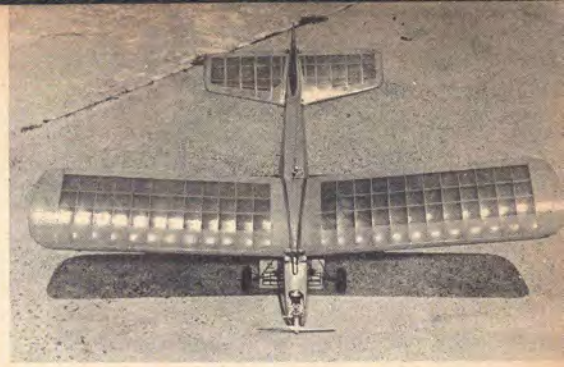
By VINCENT J. BONNEMA



Ever see a "hesitation" roll done with a model? Well, Roll-o will knock off those eight-point rolls with ease. A spectacular stunt!







Although plane has been using a .19, Vince says a hot .14 or .15 along with smaller batteries would give you a sort of "advanced trainer." His .19 weighs in at 4 lbs., 3 oz.

Editor's Note: During each flying season, we have many fine designs recommended by many helpful individuals. But no radio controlled modelplane has produced so many comments as this particular craft. Only an average model as far as "looks" are concerned, *Roll-o* was designed with a number of more important requirements in mind. Simplicity in construction, strength, and a "forgiving" performance in the air were some of these. That Mr. Bonnema succeeded in capturing all these elusive characteristics is a tribute to his designing skill. We express our thanks to the many who urged us to feature this model.

■ *Roll-o* is a radio-controlled plane that is truly fun to fly. It will perform practically any maneuver that you can expect from a rudder-only model. It is especially adept at performing horizontal rolls. In fact, on occasions it has succeeded in doing vertical rolls; hence the name. I could not think of a more appropriate one.

The design was in the development stage for almost two years. Undergoing numerous changes in that time, it first appeared with a lifting stabilizer and a somewhat smaller vertical fin. It was quite fast, had a rapid rate of climb, and gave appearances of being "red hot." However, it would not perform the maneuvers that you would expect from a seemingly "hot" airplane. After two or three turns in a spiral dive, the ship would straighten out in response to control, but all that would follow would be a vertical climb back up to where the dive had started.

One thing that I did learn from a season of flying this ship was that it was about the most rugged model that I had ever seen. It came through at least a dozen power-on spiral dives into the ground without serious damage.

During its first winter the plane was completely overhauled and several changes were made—the C.G. was shifted forward, a symmetrical section stabilizer replaced the old one, and a larger vertical fin and balanced rudder were added. The results were very gratifying. Besides the rolling ability, it will do consecutive loops with ease, and will also do Immelmans, wing-overs, and hammerhead stalls. Wind penetration is excellent. It is possible to fly in 20 to 25 mph winds, and stay upwind for the entire flight.

While trying to simulate a slow-roll, by blipping opposite rudder as the ship was going through a snap-roll, I was quite surprised to find that the plane actually did an eight-point or "hesitation" roll. This is a very spectacular maneuver. If you have enough nerve to hold it in a screaming spiral dive for about three turns, and then as it levels out and starts to come up, you apply opposite rudder, this baby will reward you with three consecutive horizontal rolls! R.O.G. take-offs are very easy, too.

A word here about the control system used in the ship and at the transmitter. The Adams actuator on six volts gives adequate power at the rudder for fast response. I would not advise using less than six volts on this ship. I find that four pencells in series last for at least fifteen 8 to 10-minute flights.

I use a Mac II transmitter and a multivibrator pulser circuit employing a 3A5, a 1S4, and a sigma 5F relay. To my way of thinking, proportional control has many advantages over escapement control. However, it had one disadvantage in that the response to control was a little slow. To eliminate this, I installed two push button switches on my control box. One is a normally-closed switch and the other is normally-open. Pushing one will give full left rudder, and the other will give full right.

I find that I use the buttons for practically all of the stunt flying, while the proportional control gives a nice gentle response that makes for a good Precision Pattern under the A.M.A. rules.

If you use a mechanical pulse width control, the full rudder position switches are easily adapted to that type of control. Insert the normally closed switch in series with the keying contacts, and the normally open switch in parallel with the same contacts.

"ROLL-O"

The construction of *Roll-o* is quite simple and straightforward, but there is one point that I would like to stress. The only access to the receiver compartment is the opening at the top of the fuselage. It is imperative that the receiver and actuator wiring be installed in a workmanlike manner. By harnessing the wires together and fastening them to the fuselage structure, you can eliminate possible wire fatigue due to engine vibration.

I use a six-prong disconnect plug to facilitate receiver removal. If you choose to do the same, select a tight fitting plug and socket. You may break a few fingernails in taking them apart, but you can be assured that they will not come apart in flight. Be certain that all wiring is installed and that the actuator installation is complete, before the balsa sheet is put on the bottom of the fuselage.

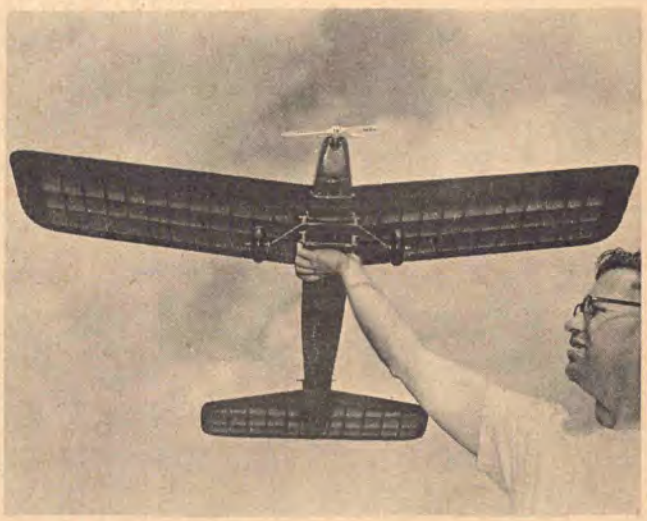
Some builders may feel that the lack of an access hatch to the bottom or side of the receiver compartment is a bad feature. However, I find that it is quite easy to remove a portion of the bottom sheet if a repair is necessary, and glue it back in after the repair is completed. This type of construction eliminates possible weak points in the fuselage and allows lighter construction.

The ship has never flown with anything but a .19 engine, but its performance with that size indicates it will fly quite nicely with a hot .14 or .15 cu. in. motor. It has 580 square inches of wing area, and weighs in at 4 pounds, 3 ounces. This gives a wing loading of approximately 16½ ounces per square foot.

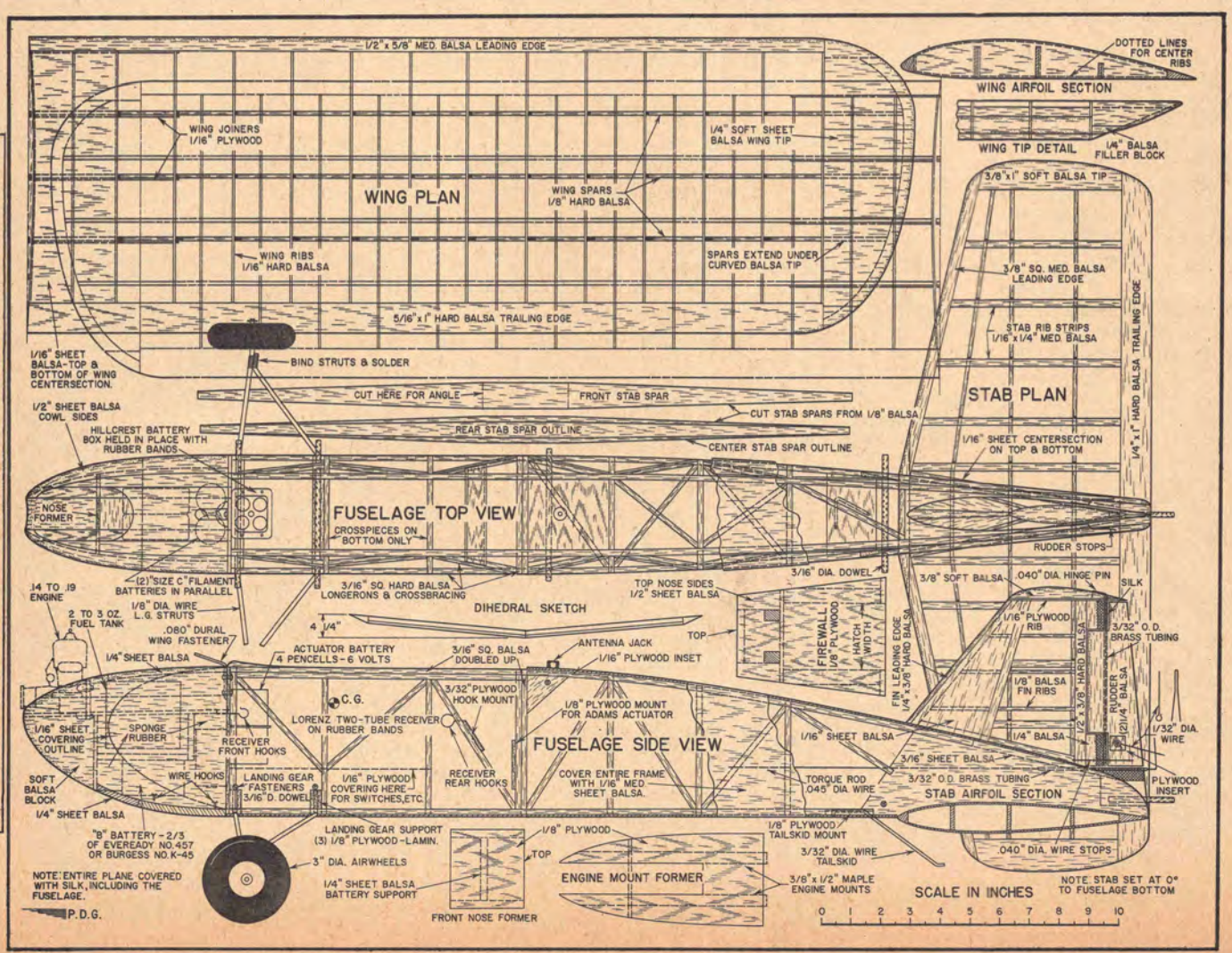
If you haven't had any experience flying a good fast ship, I suggest that you start off with the smaller displacement motor, and possibly smaller batteries to cut down the weight. With this arrangement, you will have what could be considered an advanced trainer.

To those builders who feel that they have done just about all they can do with rudder control only, I suggest that you try *Roll-o*. I'm sure it will give you a new lease on life.

In previous seasons of radio-controlled flying, I have had limited successes, and quite a few disappointments—in fact, there were times when I wondered if I were doing the right thing in continuing with this phase of the hobby—but this past season has been all *fun*, and I think that the greatest contributing factor to all this fun is *Roll-o*. It really is fun to fly. It's fun to win contests, too, and *Roll-o* has turned up with two firsts and a second place in the three contests entered so far.



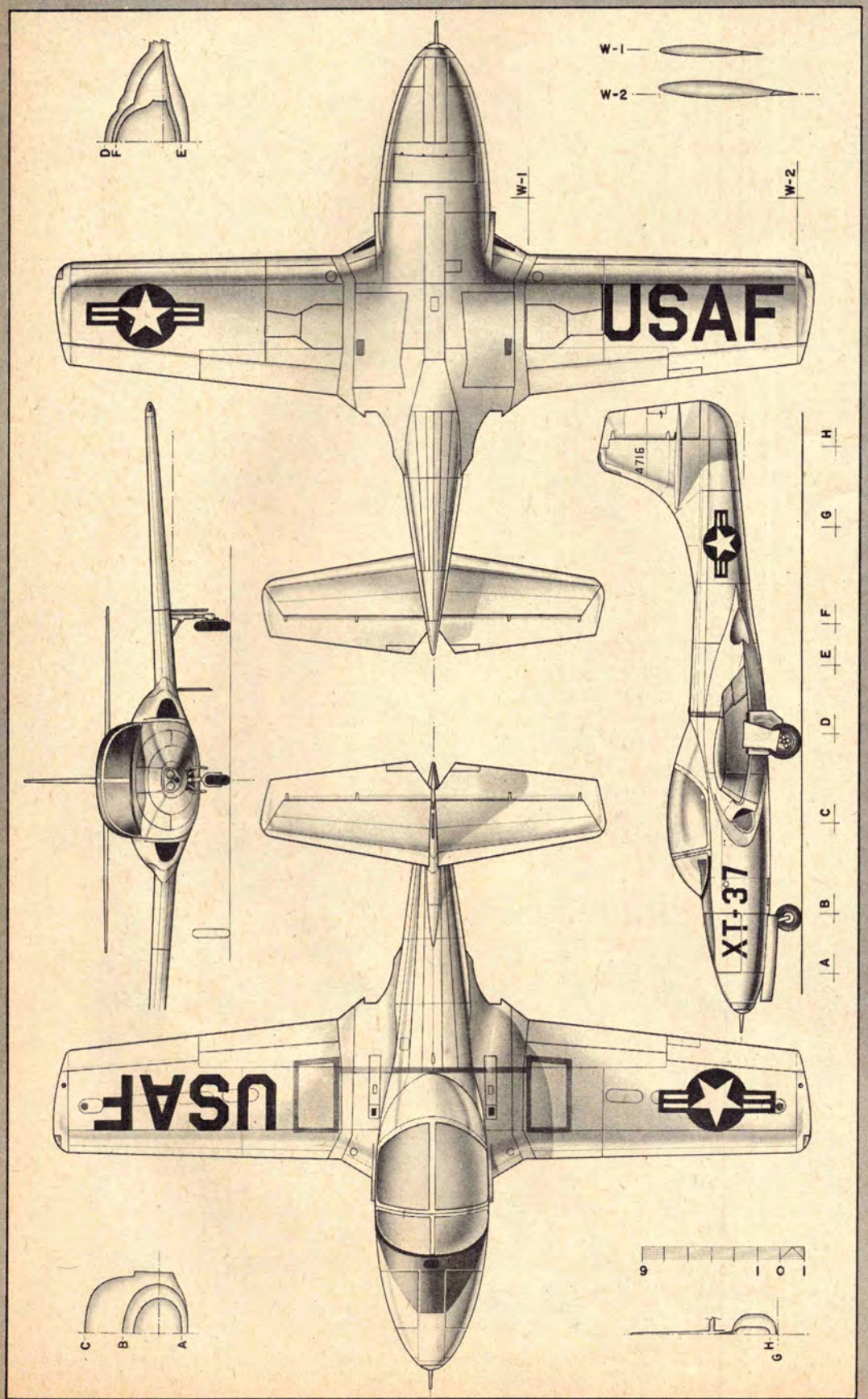
Nothing really sensational about this radio plane—in looks, that is—but the way it flies! Ask any Eastern Mirror Meet contestant.

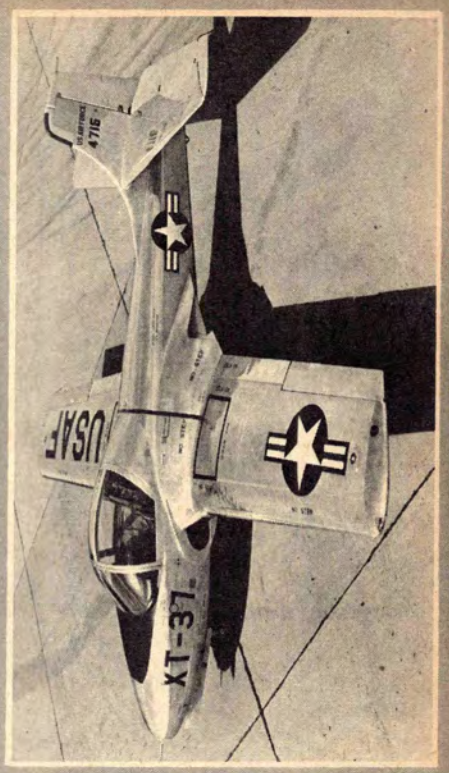


Full-size plans for this R/C "Roll-o" are a part of Group Plan #655 by Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. (50c).

SCALE VIEWS BY JEFFERIES:

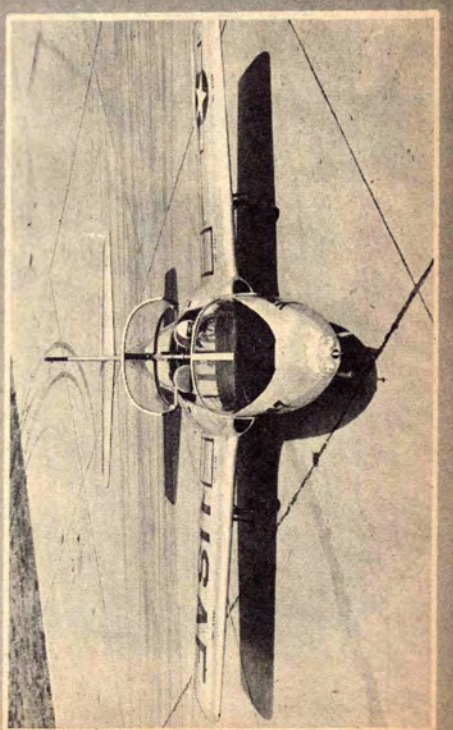
CESSNA XT-37





First U.S. side-by-side jet airplane to be designed for training purposes, the XT-37 has wingspan of 33', length 27' 1", height 8' 8".

Two Continental XJ-69-T-15 engines of 920 lbs. thrust each. Top speed over 350 mph. Army will also use plane for missile-observation work.



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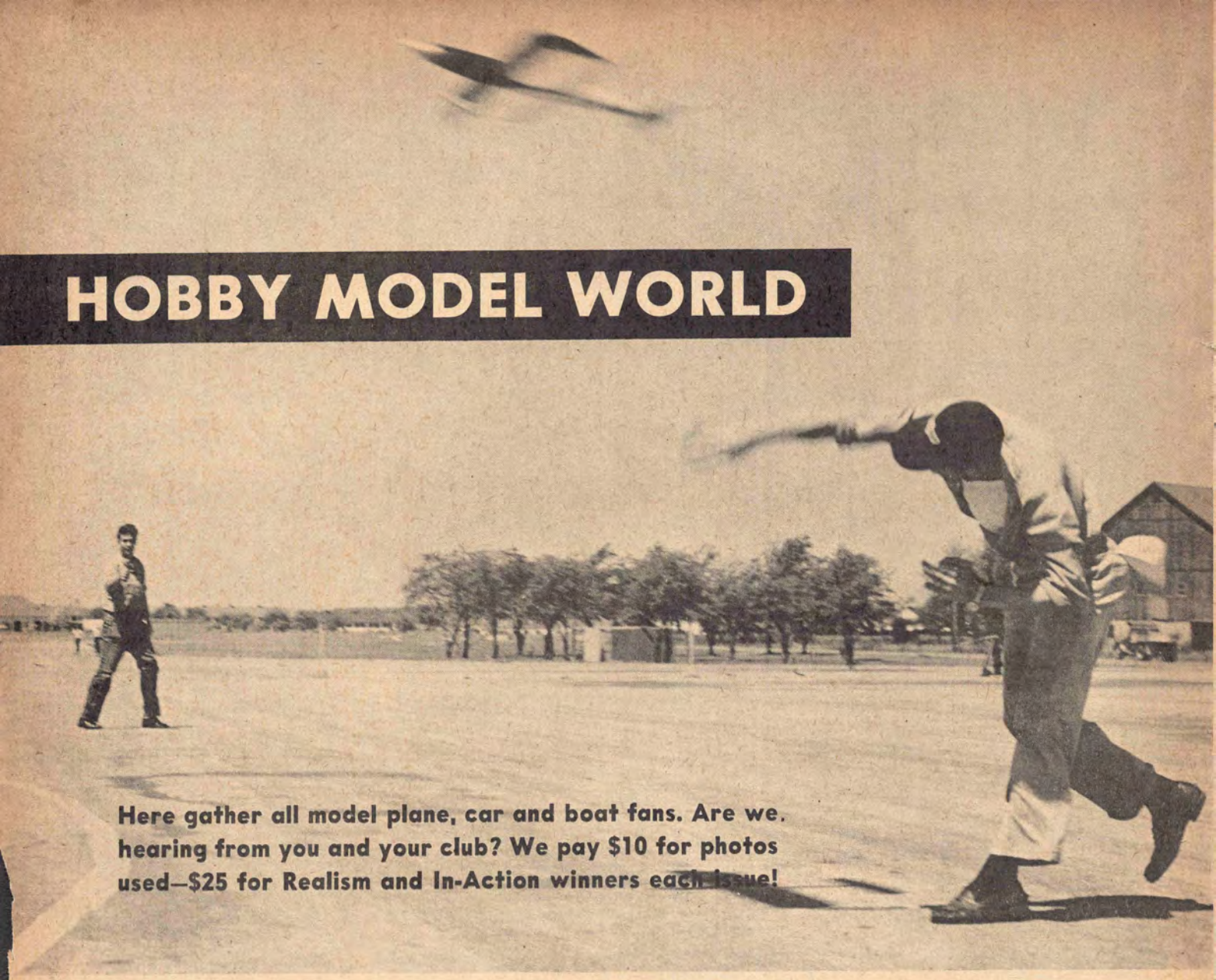
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One coat coverage...easy brushing and spraying...excellent rubbing qualities ...high flexibility...film toughness... pure color brilliance...

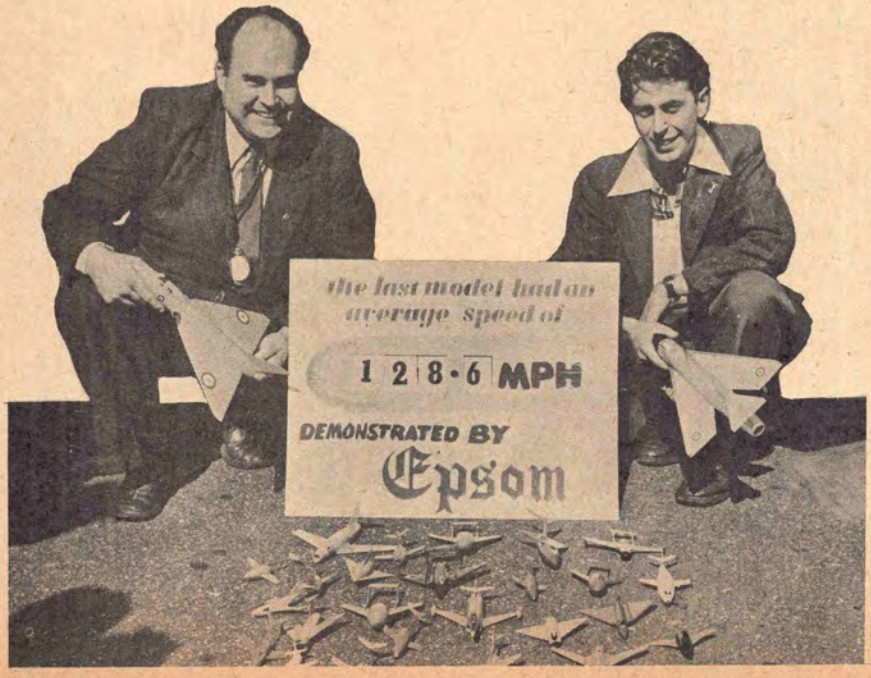
...and hot fuel proof, too!



HOBBY MODEL WORLD



Here gather all model plane, car and boat fans. Are we hearing from you and your club? We pay $10 for photos used—$25 for Realism and In-Action winners each issue!

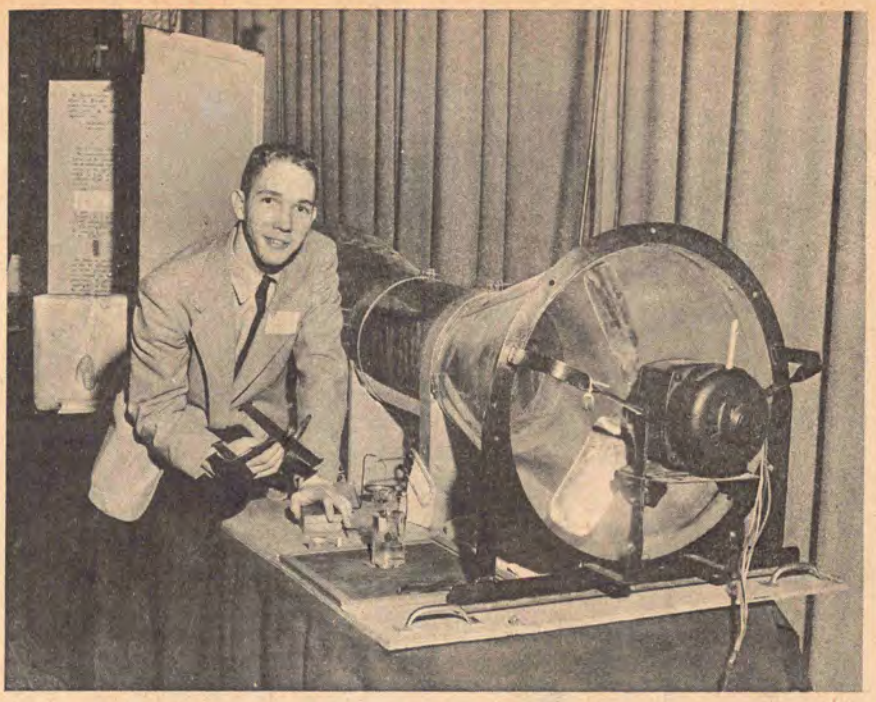


England's Epsom club started craze for Jetex powered "solid" scale planes that hit over 100 mph. Asbestos-lined, hollow fuselages have motor within; plastic rudders and stabs. Models tethered to pole. All sizes of Jetex.

Wind Flying. What to do when your props are all broken, fuel all gone and the wind starts blowing half a gale! If you still have the urge to fly, try this very economical method used by Bob Yeomans of West Haven, Conn. (See lead photo).

There's an old saying: if you can't lick 'em—join 'em. Well, this idea can be applied to model flying as well as politics. When the wind starts to blow hard and most modelers put their planes back in the car, that's the time to try a bit of wind flying.

It goes like this. With the wind velocity about 30 to 35 mph, take any light stunt model, remove prop, add one nimble-footed wide-awake flyer and hand-launch model as hard as possible, quartering into the wind from the downwind side of flying circle. The flyer immediately pulls plane up into a loop, the wind keeps it tight on the wires. The model can be flown into inverted flight, outside loops, horizontal eights and square loops as long as flight is



John W. Stone (right) of Charleston, W. Va., competed in the 14th annual Science Talent Institute which offered $11,000 in Westinghouse Science Scholarships. John, 17, designed and built this tunnel to test model planes and components and investigate the aerodynamic effect of curved fuselages. He plans a career in aerodynamics research. Ranking first in his senior high class of 450, he won an American Chemical Society Award for his work in chemistry.

confined to downwind side of circle. Maneuvers must be continuous, flying from one into another. The flyer will have to move fast to take up any slack in the lines as the plane approaches upwind side of the circle.

The only difficult part of the whole idea is the landing. As long as wind blows strongly flight can be continued, but landing in a half gale can be rather bumpy. You might have your launcher try catching the ship as you stall it going upwind.

Even though wind flying may sound real crazy, we've seen it done many times, so you'll have to take our word for it. Try it! Guaranteed to save money on props, fuels and engine wear and tear, to say the least.

How To Get Members. Here's a good one we've been saving for a long time. Dr. Stanley Hill of the Santa Barbara, Calif., Modelers Club called it to our attention originally. Since then we've heard the idea praised by many people. Best part about it is that it can be used effectively by any type of model-hobby organization—planes, boats or cars.

The "gimmick," as Doc Hill describes it, is a small printed form just under 3 x 6 inches, with its short sides at top and bottom. It's printed on one side only. At the top appears the club emblem, then this message:

The Santa Barbara Modelers offer you help in the design, construction and flying of model aircraft.

You can benefit from the experience of recognized experts in the field by joining this group of Santa Barbarans active in all phases of free flight model flying.

The exchange of views and experience with other enthusiasts that comes with club membership enables fullest enjoyment of the sport and only in this way will you gain your experience in the shortest time, avoiding needless disappointment with your model making.

Business and social meetings are held twice a month on Monday evenings at 7:30 and flying meetings are held on the first Sunday of each month.

For further details see your local hobby dealer or call:

Roscoe Low .....Tel. no.
Stan Hill .....Tel. no.
Jack Smith .....Tel. no.

These slips are placed in kits and engine boxes at each of the local hobby shops. A club that is primarily a free flight group would place them only in kits and engines that would be used by that segment of the modeling population they are trying to attract. Thus, it has the advantages of reaching only those builders who are active, and active in the selected field of modeling preferred by the club.

Doc Hill points out that the effort required to reach modelers in this way is certainly far less than any other and the cost is low—about $10 per 1,000 sheets, or a penny each. The S.B. Modelers found the idea worked well and was a lot easier than compiling lists and sending postcard invitations.

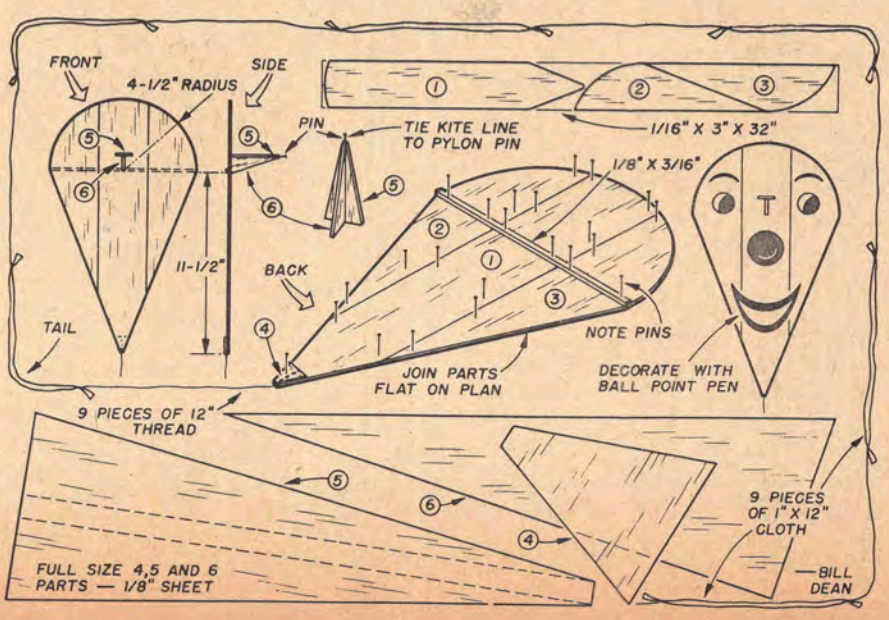
We salute the Modelers for a real fine idea and suggest to other clubs they pick it up.

Who Gets The "Workmanship" Points? The boss man got involved in judging a model plane exhibit recently at a large aircraft plant. Seems like there was a special division for non-flying scale models of craft turned out by this particular firm. As he tells it, the trio of judges ended up having to choose between plastic assembly models and an all-wood prefabbed entry. The following point system was governing the judging: A) workmanship and construction, maximum 50 points; B) finish, maximum 25 points; C) general appearance, maximum 25 points.

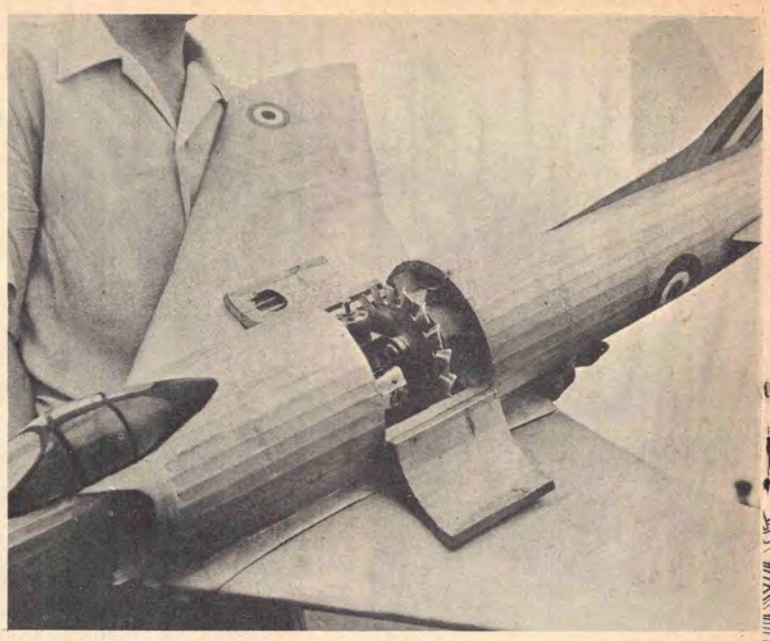
Big question that came up was, "How much workmanship and construction are involved in cementing together plastic shells?" The answer was, "Not much." So—very few points for plastic entries as far as "A" points were concerned. Then—how much "finish" is there on an unpainted plastic model? Not much of a score there, then. Well, as you may have guessed the boss reported that top points (under that particular system)

ALL BALSA KITE

Too windy for model planes? Then try this "Flying Clown" Kite (right). At first glance it appears just like an ordinary kite,—but there's a big difference. Instead of the old-fashioned paper-and-sticks structure, this "Flying Clown" is built entirely from balsa. It's easy to construct, very light and tough enough to stand up to plenty of hard knocks. Draw a half circle with 4½" radius, then join up the open ends to a point 11½" below the circle center. Divide the outline in three (horizontally) and trace patterns 1, 2 and 3 onto 1/16" sheet (see layout on drawing). Cut out and cement these parts edge-to-edge — pinning down flat on the building board. Next, pin the ⅛" x 3/16" cross brace in position and while this is drying, cut out pieces 4, 5 and 6, using the full-size patterns provided. Secure the first piece of tail thread by sandwiching between the kite and piece 4, then unpin from the building board. Join pylon pieces 5 and 6, decorate the "face" as shown — or with your favorite cartoon character — and cement the pylon "T" in position. Make the tail from pieces of an old handkerchief and thread as detailed. Push a pin into the top of the pylon and tie on 200-300 feet of kite line. — Bill Dean.







went to the all-wood entry which had a nice silver-doped finish—though none of the rivet-detail finish molded into the plastic entries.

For awhile there was some discussion about awarding the prizes to the die-makers at the Lindberg, Aurora, Hawk or Revell plants!

All of the foregoing leads up to a suggestion for exhibit contest directors to break non-flying scale models down into plastic, pre-fabbed wood or original entries. It'll be easier on the judges and a lot more fair for the contestants.

Speaking of Scale Model Events. Let us tell you about the biggest affair that's held in the country. We refer to the annual National Model Plane Show sponsored by the Cleveland, Ohio, Chamber of Commerce, the Air Foundation and Cleveland Community Chest to encourage model building activity in Red Feather agencies.

Most outstanding plane among 1,965 entries at the Higbee Co. auditorium was a control line scale model built by Dolson Mosher, open age division entrant from Akron. Mosher's model was a replica of the Fokker D-7 biplane flown by German Ace Ernst Udet in World War I. The craft's wingspan was approximately 40 inches. It had a completely equipped cockpit with realistic stick and rudder pedals which operated the control surfaces, a compass that actually worked, plus other instrument details and carefully detailed machine guns.

Through considerable effort Mosher duplicated the camouflage even to distortions of the hexagons caused by dope on the original Fokkers. The plane won him first place in the open age powered scale event and the Eastern Air Lines' Capt. Eddie Rickenbacker trophy for "the Best World War I plane in the show."

Second to Mosher was Harold Beamer of Tiffin, Ohio, who entered a control line twin-engine Navy Neptune patrol bomber, the same one he used at the Nationals in Chicago last summer.

Third place in the same event went to Steve Harvilla of Cleveland, whose scale Convair F-92 interceptor also won the Merit Finishing Co. Trophy for having the slickest paint job of any entry.

Hundreds of models in the show were made from Monogram "Speedee-Bilt" and Strom-Becker kits. First-place winners in most events were constructed from magazine plans or from drawings furnished by the Smithsonian Institution.

John Humphreys, open class builder of Lakewood, won the built-up scale division with a completely detailed Lowell Bayles' Gee Bee Super Sportster built from plans made 20 years ago by Cleveland Model & Supply Co.—now Cleveland Model Products, Inc.

One of the interesting models among first-place winners was a built-up scale replica of the famous Fokker T-2 which made the first non-stop flight across the United States in 1923. The original is displayed in the Smithsonian. The model was built by nine-year-old Dan Tracy from a photo of a 3-view painting.

The 8th N.M.P.S. workmanship contest was open to five general types of models: built-up, solid, powered scale, futuristic and craftsmanship—the latter including all types of non-scale flying models. Entries were not required to perform. There were six age divisions.

The Air Force sent its fourth ranking jet ace, Col. Royal N. Baker, to the show to present trophies and make appearances during the two days. An ideal hero for young aviation fans, Col. Baker is a triple ace. In World War II over Europe he shot down 3½ enemy planes; in Korea he shot down 12 MiG's and one La-9.

License for His Hobby. Kenneth Merchant of Cowley, Wyo., doesn't write to tell us about his hobby, he wants us to know about his uncle's hobby—collecting auto license plates. Louis M. Smith has 38 of the 43 yearly license plates issued by the State of Wyoming beginning in 1913. Says Ken of his uncle, "He not only has the plates but has made a very thorough study of the history and laws regarding them. It's not a fast moving hobby, it's true, but it is very informative and interesting."



HOBBIES-IN-ACTION $25 award winning photo was submitted by Bill Baughman. It shows Lloyd Allen's 42" radio control boat going through some fancy maneuvers at Los Angeles' Alondra Park lake. Power is water-cooled Dennymite running with glow ignition. Rudder only. Lloyd has identical boat with electric power.

Ducted fan English Swift fighter (left) by B. Grimston. Engine driving "fan" is E.D. 2.46. Model weighs 2 lbs., 2 oz.; spans 56"; overall length, 48". Intakes proved too small.

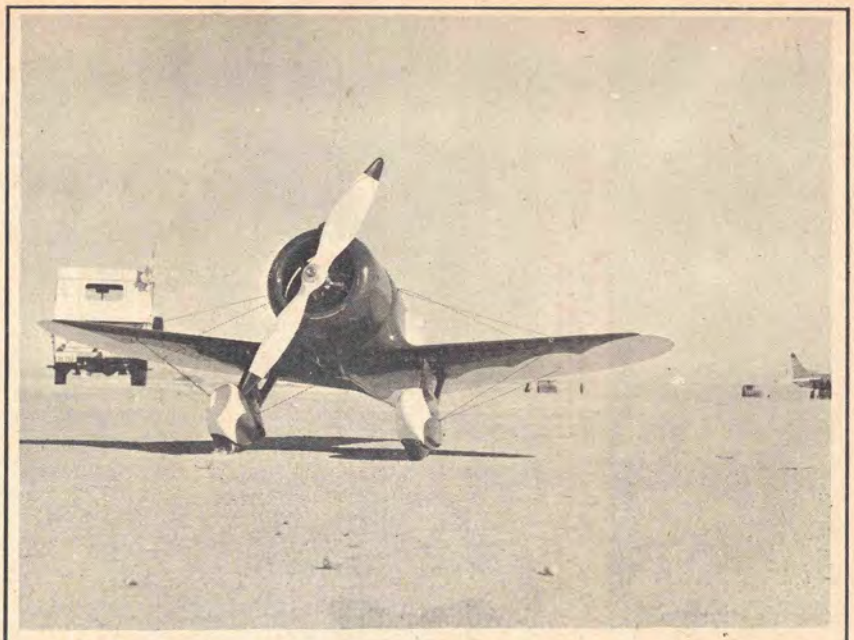
Plug For Plastics. A world in miniature that the entire family can help create is featured in Monsanto Chemical Co.'s short 16-mm color film, "Have a Hobby."

The movie is available free to television program directors, women's clubs, schools and department stores. It demonstrates how assembling plastic models of everything from Early American housewares and antique autos to jet aircraft can establish a sense of joint accomplishment in the family. Says Monsanto: "A closer bond of unity, too, is gained by family hobbyists, and finished models lend an air of charm as home decorations."

(Also do those spots of cement on the table!)

"Have a Hobby" runs 13 minutes; it offers hints on caring for finished models and ideas for creating dramatic displays for the model family's model collection.

(ATH will have some good suggestions next issue on the same theme, we're told.)



MOST REALISTIC MODEL—$25 Award Winner this issue is submitted by James B. Newman of Lancaster, Calif. This is his Gee Bee scaled 1½" to the foot. Color is red and white. Power is Super Cyclone .60. Covering is silk. U-control, guide wires lead in through wing. Clever positioning gives big ship illusion.

This And That. Gentleman looking for a Bonner Compound Escapement, a Cub .14 and an extremely small receiver. He has available a Bunch Tiger ignition engine, Mac .19 Red Head, Cub .099, Fox .19, and Dmeco 2PN servo. "All inquiries answered," promises Roger F. George, 3405—17th St., N.E., Washington 18, D. C.

Looking for some old catalogs and publications is Walter Kotula, RFD #2, Denton, Md.

Specifically what he wants is Megow's ABC of Modeling, Megow's Model and Supply Catalog (the issue with the story of balsa wood in it) and three issues of the Cleveland plan-mag. Anybody got same?

Bronx, N. Y., unaffiliated modeler wants to join a club. Daniel Garfinkel of 775 Garden St., Bronx 60, has been building boats, planes and cars for more than 12 years. Active clubs in this area —please contact Dan.

Mad about model rockets is how you might describe Dean Mattila of Hamel, Minn. He'd like to hear from any group or groups which concern themselves solely with model jets and rockets.

Recently Joseph J. Souhrada, 40 New St., East Islip, L. I., N. Y., came into possession of a hardwood model of a World War II German PzKw IV long-barreled 75 version medium tank. Unfortunately the treads are missing, plus a few other exterior details. As the model was made by a German tankman in Germany during the war it is very accurate and completely authentic. Joe would like to make a new set of working treads but can't get any data on the original tank. Anybody got drawings, photos or clippings on the PzKw IV for JJS?

Things you hardly ever read in Dick Everett's column "Western Roundup"—Dick became a Pop again not long ago, his third offspring and first daughter.

Wants to correspond with fellow rocket enthusiasts: Norman Morris, 5786 Cedar Ave., Long Beach, Cal.

From the Ann Arbor, Mich., "News" we learn that the Darwin Model Aircraft Co. has turned out more than 1,000,000 fuel tanks for model engines. The concern is about to launch into the prefabricated control line kit field. But most amazing was the fact that the Darwin staff built its new 30 x 80 foot factory building! The firm's founder R. F. Darwin designed the building. The senior Darwin got into the business through the model interest of one son who came to him for help in constructing a model.

Next thing R.F. knew he'd built his millionth tank and was about to tackle kits!

Horray For The Gals! And by "gals" we mean the Wing Scouts who are air-minded Senior Girl Scouts. While the Civil Air Patrol continues to do nothing nationally and officially with model building, along come the Girl Scouts in their new booklet "Wing Scouting" and suggest: "Build flying models, attend a model air meet. . . . Learn about gliding and soaring. Attend a meet. Take a flight in a glider or sailplane. . . . Make plans for student pilot training. Learn to fly!"

To earn her first rating, "Wing Scout Analyst," a girl must "make or assemble a simple balsa model glider with a wing span greater than 12 inches. With your model demonstrate lift, thrust, gravity, and drag in relation to flight. Learn to adjust it for straight and level flight and loops. Explain profile drag, induced drag, parasite drag."

Our hats are off to the Girl Scouts.

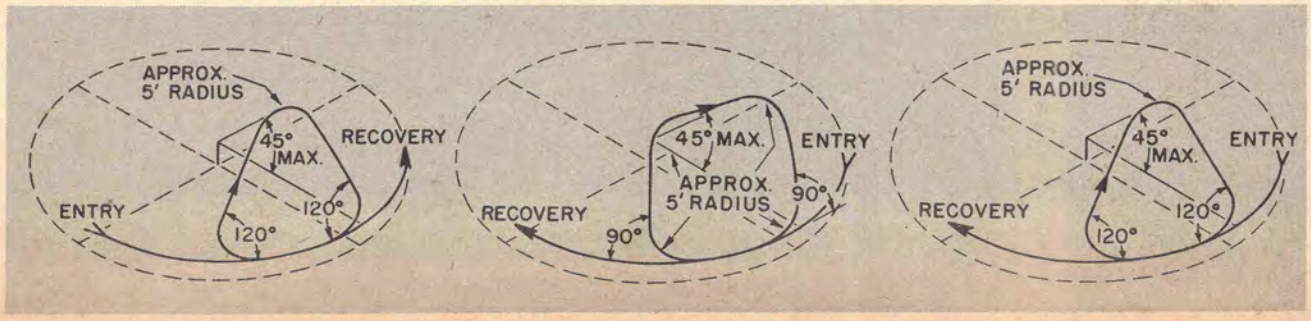
Observation. Says one noted model-plane authority: "When we had the big fields, we couldn't get our models to fly. Now that we can fly a model out of sight with no trouble at all—no fields!"

How true.

Bustin' Out All Over. Sioux City garage

(Continued on page 80)

Possible A.M.A. stunt patterns drawn by Cal Smith and contributed by ATH to Academy. From left: new triangular loop; center, outside square cornered loop which was considered but rejected; right, one that was proposed, but not accepted—inverted triangular loop!



CYCLE CHATTER



■ While a bicycle is generally thought of as a means of transportation—to and from school and athletic events, for delivery errands—the two-wheeled steed also fits in very nicely to a wide variety of outdoor games.

One of the most interesting of these games is a "Treasure Hunt" in which a bicycle can be used to advantage due to the ease with which ground can be covered. Now that the summer months are in the offing many opportunities can be found for this game as well as bicycle polo, "Hare and Hound Chase" and others.

Any numbers of cyclists can take part in a Treasure Hunt and contestants can participate as individuals or as teams. Teams consisting of two, three or four men make the competition more interesting, providing opportunities for group effort in following the clues for the hunt.

The idea of a Treasure Hunt is to follow a series of clues with the objective, as the name implies, of finding the hidden treasure. In making preparations for an event officials often find as much enjoyment in laying out the course as the competitors do when they take part in the chase. An ideal course is one on which historical monuments and landmarks will be found, so that such points of interest can be used as clues along the route.

At the selected starting point, envelopes containing the clues to the hiding place of the second clue are handed to the Captain of each team (or the individual contestants if they are riding singly). If there are six starters, or six teams, that number of envelopes is distributed. Likewise, six envelopes are hidden at each of the points where the succeeding clues will be found. These envelopes with the clues are numbered consecutively.

The first set of envelopes (Clue No. 1) are opened simultaneously on a signal from the Starter of the event. This clue, for example, might read: "Find Clue No. 2 at the bear's cage." The cyclists would immediately start pedaling to where they think the bear's cage is located in an effort to be the first to find the clues hidden there. This next clue might associate the succeeding hiding place with a monument, boat landing or any objective that would be within view, even though distant, or known in a general way to the competitors.

The goal of all the competitors, of course, is to be first to reach the location of the hidden treasure—which should be a valuable trinket or an order for an item of bicycle merchandise. Bicycle dealers encourage this sort of competition and usually cooperate by donating bicycle parts or merchandise to be exchanged for the "hidden treasure."

Additional interest can be aroused in this type of event by having the clues written in jingle form. The following samples were used in a Treasure Hunt conducted for cyclists last fall. This event started at a river bank near the mooring of an old Clipper Ship. The first clue was found in this jingle:

In front of a ship on which pirates once sailed
Is the start of the hunt for a treasure well veiled.
To guide you on further, here's what to do,
Just look for a note near a deer in the zoo!

Five teams were taking part and as some amongst the cyclists knew the location of the deer cage in the nearby zoo, they hurried to that point on their bikes where five envelopes with clue number two were hidden. This clue led to bear den . . . to carillon, to flagpole.



Then a clue was indicated in an empty fish pond at the Aquarium.

The final clue to the Hidden Treasure and the end of the ride:

Reverse your steps to a tree marked "X"
and follow a road that leads to the West,
'Neath a tree which has fallen hides the treasure of gold,
Which is yours if you find it, to have and to hold.

Such jingles are general in character; they can be revised to suit local conditions for most public parks. The game can be short with only a very few clues, or if plenty of time is available the course can be stretched out to cover several miles.

—Otto Eisele,
Associate Editor, "American Bicyclist"



CHOOSE YOUR FAVORITE

$1.50 each

. . . take your pick of these U-Control Model Thrillers

AT HOBBY DEALERS EVERYWHERE



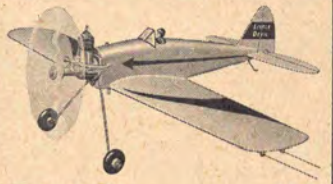
STUNT MASTER $1.50
SPAN: 18" For .035 to .099 Eng.
The stunt-n-est ½A stunt plane ever . . . all prefabricated model with a carved balsa fuselage, etc.



MONOCOUPE 90A $1.50
SPAN: 18" For .035 to .074 Eng.
Scale model of America's favorite private plane. Prefabbed with a carved balsa fuselage, etc.



F-86 SABRE & F-51 MUSTANG
Our sensational 2-in-1 kit. Contains 2 complete, realistic profile models. Both control-line flyers take .020 to .074 engines, both have 18" wingspans. Not one, but two complete models . . . make and fly both . . . for only $1.50



LITTLE DEVIL $1.50
SPAN: 18" For .020 to .074 Eng.
Economically priced U-C model. Prefabbed parts include: formed balsa fuselage & wing.



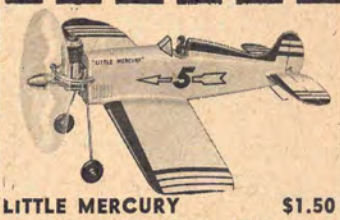
LITTLE BIPE $1.50
SPAN: 16" For .020 to .074 Eng.
Carved balsa fuselage bi-plane, prefabbed for easy assembly. It's control-line. A real value!



SPORT RACER $1.50
SPAN: 18" For .020 to .074 Eng.
Good U-Control performer at a remarkably low price. Completely prefabbed kit. Easy to fly.



WACO CABIN $1.50
For .020 to .049 Engines
Imagine! Carved fuselage biplane "beauty" for only $1.50. Prefabbed for U-Control.



LITTLE MERCURY $1.50
SPAN: 18" For .039 to .074 Eng.
U-Control carved fuselage model. It's completely prefabbed. A cinch to assemble.

NEW!

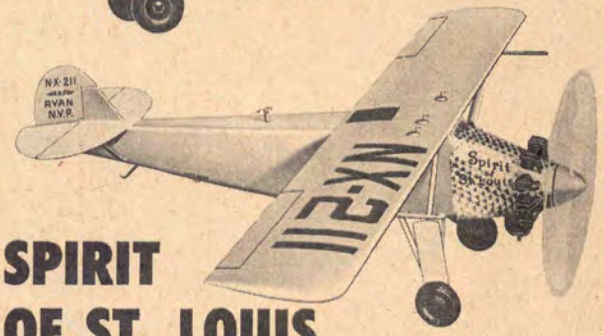
Here's B-I-G money-saving news for all ½A fans! Four (4) brand new U-Control sensations . . . with 18" wingspans . . . priced at a tiny $1.50 each. They've just been released—all authentic scale flying models. Every single kit is prefabricated for quick, easy assembly. Each contains Jim Walker's U-Control, a carved balsa fuselage, airfoiled balsa wing, metal cowl . . . and all parts formed, cut or shaped to practically fall together.



CESSNA L-19A BIRD DOG



CESSNA "180"



SPIRIT OF ST. LOUIS



PIPER CUB CRUISER

BE SPECIFIC SAY— **SCIENTIFIC**

SCIENTIFIC MODEL AIRPLANE COMPANY
113 A6 MONROE ST., NEWARK 5, N. J.
If no dealer is available, add 10c (postage & packing) to cost of model



ROCKET TRAILS

ROCKETS, GUIDED MISSILES, SPACE SHIPS

By HARRY G. STINE

WHITE SANDS PROVING GROUNDS

Behind the scenes with the science which one day may carry man beyond the orbit of earth

■ By far the most ancient of all rockets is the solid propellant rocket. Originating with the Chinese around 1200 A.D., these primitive "fire arrows" have grown in importance and usefulness down through the ages. However, most of the advances in solid propellant rocketry have come recently.

The difference between a solid and a liquid propellant rocket is obvious. The liquid propellant rocket derives its thrust from the combination and ignition of two liquids, one an oxidizer and the other a fuel. In some instances, as with hydrogen peroxide, H_2O_2, both oxidizer and fuel are combined in a single liquid and the liquid is then termed a "monopropellant." (Hydrogen peroxide is not a true mono-propellant; it does not burn, but decomposes into water and nascent oxygen, releasing heat which turns the water to steam.)

Liquid propellant rockets may be built so that their thrust can be throttled; and they may, in many cases, be started and stopped at will. The solid propellant rocket, on the other hand, has its fuel and oxidizer contained in a solid form which is inert until ignited. Once started, a solid unit may burn until all propellant is exhausted unless the rocket nozzle or the forward end is blown off.

A typical solid propellant rocket motor is shown in Figure 1. It is amazingly simple in comparison to the liquid unit. The entire motor is made up of the combustion chamber which is filled with solid propellant. One need only ignite the unit with a black powder "squib," and the unit is operating. The propellant immediately starts converting itself to extremely hot gases which rush out through the nozzle at tremendous velocities. The thrust thus developed is a function of many things (1) the rate of burning, (2) the composition of the propellant, (3) the temperature of the entire unit, (4) the pressure in the combustion chamber, and (5) the area of the nozzle throat. There are other factors of comparative importance as well. The unit may be made to burn longer by changing the composition or the amount of the propellant.

The composition of the propellant ranges anywhere from slow-burning gunpowder as in the Fourth of July skyrocket to complex "double-base" propellants containing such things as nitroglycerine or nitrocellulose.

The shape of the "grain" or propellant charge is another important item of solid propellant rockets. The "restricted burning" grain (Figure 2) burns only at one end. The thrust is, of course, much less than that produced by the "unrestricted burning" grain (Figure 3) which allows a greater area of propellant to burn at a given time.

In manufacture, solid propellants in a liquid or dry state may be extruded or cast into a variety of grain shapes, a few examples of which are shown in Figure 4. In order to achieve a constant thrust with unrestricted grains, engineers must design such grains so that as the propellant burns away a constant area of burning propellant is present.

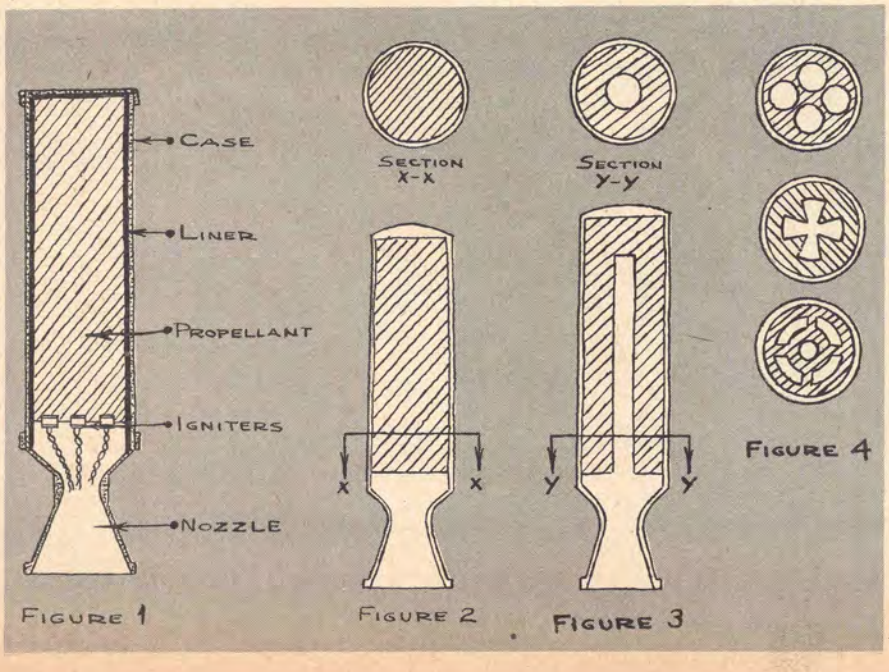


FIGURE 1 FIGURE 2 FIGURE 3 FIGURE 4

The field of solid propellant rockets has made great strides in the last few decades. Today, they are used wherever a simple unit is required to give large amounts of thrust for a short period of time.

Commercial solid propellant RATO units have achieved a reliability far in excess of most liquid units; the Civil Aeronautics Administration has given its okay to a number of solid RATO units which can now be used to get heavily loaded airliners and cargo planes off short runways in a hurry.

And when you think of space flight, don't forget the solid propellant rocket. Although the liquid propellant rocket may provide the long-duration thrust needed, the solid propellant rocket may be used to give the initial kick or boost to the space ships of the future.

The Voice of the Rocket

When the men at White Sands Proving Ground fire a rocket high into the sky, they are after data on such things as the performance of the rocket or the physics of the upper atmosphere. Since present-day rockets are totally demolished when they crash on the desert, and since no human pilot goes along to report what is happening, rocket men use a system called "telemetering" to get their data from these rockets.

Telemetering is really very simple at first glance. It is merely a method of transmitting information from rocket-borne instruments back to the ground by radio. Information picked up by the instruments in the rocket is converted into electrical impulses which modulate a radio transmitter in much the same way as the voice of your favorite disc-jockey modulates the transmitter of the local broadcasting station.

The signals are then picked up by ground stations and recorded for later, more leisurely study. But, since there are many bits of information from several instruments in the rocket, and since there is a limit to the number of transmitters a rocket can carry, scientists have developed a method known as "commutating" wherein the information from many instruments is switched into a single transmitter in rapid succession. The result, when heard over the receiver on the ground, is a series of musical-like notes and tones which sounds like an inebriated octopus having a fling on a concert Steinway and whistling an off-key accompaniment.

A Safe Rocket at Last!

It is not the policy of this column to publicize commercial products. But the Park Rocket merits attention.

If you want to learn the basics of rocket propulsion, get one of these little gadgets manufactured by the Park Plastics Corp. of Linden, N. J. By filling the plastic rocket about half-full with water, and then pumping it up by means of the combined launcher and pump supplied, this little beast will go as high as 300 feet into the air. Basically, it's very simple: the air which you pump into it forces the water out once the rocket is released from the launcher, and this produces thrust in the same manner as a real rocket engine.

You may get wet, but you won't get hurt. The missile can be used over and over again. You can learn about mass-ratio by using different amounts of water. By varying the number of times you pump it, you can change the jet velocity. If you want to go further, try changing the size of the nozzle.

America's Famous Helicopters At New Low Prices!

Official Scale Models Win Acclaim of Experts Everywhere for Authentic Detail!

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with official insignia in Army olive drab, Navy blue, and Civilian red.

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with official insignia in Army olive drab, Navy blue, Marine blue, Air Rescue Service gray, and Coast Guard yellow.
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So Real-looking You'll Think They're About to Take-off!

THE PIASECKI HUP 98c
with official insignia in Navy blue, Marine blue, Army olive drab, and Air Force silver.

HELICOPTER GUIDE by "Les" Morris



The only book of its kind! Written by one of America's first and foremost helicopter pilots. Tells you everything you want to know about helicopters. Gives detailed, easy-to-understand instructions and diagrams on how to fly a helicopter. Jam-packed with illustrations and facts.
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Add 10¢ for postage and handling.

Now Own History-Making Helicopters!
Each model is precision molded, detail for detail, in sturdy polystyrene plastic. These easy-to-assemble kits include handsome display stand, detailed assembly instructions and fascinating history of the helicopter. Dramatic natural color action picture on box cover excellent for framing. They're real prizes for your plane collection.

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and fine stores everywhere, or write direct to us. Enclose check or M.O. plus 25¢ for postage and handling. No C.O.D.s. Specify model and color.

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National Competitions
For Young Men
Scholarships, cash, trips!

▶▶▶ $5000.00 Cadillac is First Prize in Monogram Contest. How would you like to win a $5000.00 Cadillac, just for writing a short letter? See the Monogram Models announcement about their two new model Cadillac kits and the real, honest-to-goodness Cadillac Coupe de Ville they are giving away. There are nine other prizes too, including a $1,000 Savings Bond Second Prize, just for telling in 25 words or less what you like best about the Monogram Cadillacs. See your Hobby Dealer for details.

▶▶▶ Fourth Annual Science Achievement awards for Students, conducted by Future Scientists of America Foundation and sponsored by American Society for Metals. Program of 104 awards totaling $5,000 for projects in science and mathematics, and open to any student in grades 7 through 12. Three divisions according to the grade you're in, and you compete only with other students in your geographical region. **Closes May 15, 1955.** For information, write to Future Scientists of America Foundation, 1201 16th St., N.W., Washington 6, D. C.

▶▶▶ Industrial Arts Awards annual competition sponsored by the Ford Motor Co. More than 1500 individual awards valued at $50,000 are given each year. Open to school students in grades 7 through 12 enrolled in shop, drawing or printing courses. **For information write** Industrial Arts Awards, Ford Motor Co., 300 Schaefer Road, Dearborn, Mich. Far West entries close June 10 elsewhere June 25.

▶▶▶ Fisher Body Craftsman's Guild sponsors car design and model building contest. $20,000 in scholarships plus numerous state and regional awards. **For details write** Fisher Body Craftsman's Guild, General Motors Bldg., Detroit 2, Mich. Closes June 1, 1955.

▶▶▶ Do you like to sound off? Enjoy expressing your opinions? Like to write powerful letters—and get paid for it, too? E and H Model Hobbies (130 W. Chelten Ave., Philadelphia 44, Pa.) is offering gift certificates (one each) of $25, $10, $5 and seven of $1 each for the best letters on "Why I prefer plastic model kits" or "Why I prefer wood model kits" when model building. Says Zev Goldberg of E and H: "Tell us your opinion in a short letter. Entries will be judged on the basis of originality and sincerity. Decision of the judges will be final. All letters become the property of E and H Model Hobbies. Contest closes at midnight June 30, 1955."

Hydro-Cat

(*Continued from page* 39)

is fashioned from sheet brass or tin can stock and is fastened to hull sheet by soldering into the slot of inverted mounting bolt and running bolt through previously drilled rudder post hole. Rudder adjustments can easily be made with this type hook-up and any given running adjustment can be maintained with a turn of the nut.

(If you wish to do so, an "inboard" version of *Hydro-Cat* can be built. There are hardly any changes, aside from the fact that the transom and transom braces are eliminated. The lower end of the "inboard" slips through a hole cut in the deck sheeting and the unit is secured with four flat head bolts as per the manufacturer's instructions. See detailed drawing.)

Finish your *Hydro-Cat* with the fuel-proof material of your choice. Use plenty of whatever you use, however, and get a good, glossy protective coat. If desired, decalcomanias can be added but make sure they are protected with clear fuel-proof dope or varnish.

When ready to operate boat, fasten small screw-eye either in transom or hull sheet for attaching wire or chain motor anchor. In actual operation, fasten your particular glow outboard to transom, secure motor in absolute straight-ahead position and control boat direction with stern rudder. As with any model, a little experimenting with rudder, motor, and overall balance will give you the performance you desire.

BILL OF MATERIALS: 1 pc. 3/16" plywood, 6½" x 15½". 1 pc. 1" x 2" x 30" soft balsa. 1 pc. 1/16" plywood, 6" x 12". 1 pc. ¼" plywood, 1½" x 2½" 1 pc. ⅜" white pine, 4½" x 1". 1 pc. brass sheet or tin can stock, ¾" x 2". 5 3-48 model mounting bolts with nuts and washers.

Model fuel-proof cement, Weldwood glue, soldering and drilling facilities, jigsaw or coping saw, sandpaper, brush, model fuel-proof finish. Decalcomanias and small screw-eye, if desired.


By Sterling—In PLASTIC!
Chris★Craft 42′ EXPRESS CRUISER
Never before, anywhere, an authentic scale model PLASTIC boat kit like this! 73 jewel-like pieces, molded in 3 authentic colors, are easily assembled, even by beginners! Kit contains a wealth of authentic detail, from venetian blinds down to specially designed shelf-mounting base. And now . . . another first! . . . Complete with specially engineered parts for power operation—battery box, extra-power rudder and propeller, electric motor mount, shaft and stuffing box, etc. Simple, easy-to-read instruction sheet includes visual directions for assembly and power operation. Ask your dealer!
*All the authentic beauty of the full-sized vessel captured ON THE SHELF!
*Brilliantly designed for actual POWER OPERATION in the water!
Length 14"
BEAM 4⅛"
Kit B-14
$1.98*
*Electric motor not included.
Ready for quick, easy assembly!
Chris-Craft
21
21



Chris-Craft 42' CORVETTE

World's LARGEST model boat kit

A RADIO CONTROL FAN'S DREAM! So tremendous, it can support 75 lbs. of added weight! Has over 2 sq. ft. of clear floor space for added equipment installation! Entire cabin instantly removable . . . but need not be removed to start gas engine. Internotched and self-aligning construction. Die-cut African mahogany parts exactly as used on full-sized craft. Die-cut and embossed Gaboon mahogany simulated teak decks. Die-cut balsa frame members, etc. Authentic decals. Yachting Ensign. Venetian blind material. Complete set of portholes. Kit includes two each: shafts, stuffing boxes, rudders, rudder stuffing boxes, also right and left hand nylon propellers, nuts, bolts, etc. Includes a 16-page step-by-step illustrated instruction booklet, plus giant 38" x 50" illustrated plans . . . including power operation and radio control installation. Simplified construction assures fast assembly even for beginners!

Kit B-15M
$24.95

Deluxe 62-pc. Scale Marine Fitting Set B-16F **$9.95**

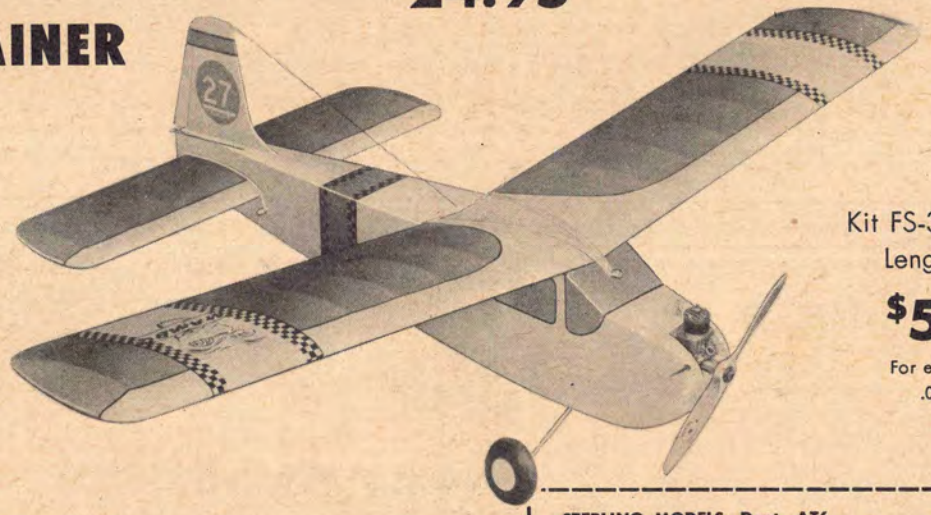
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- **Over 2½ years in development!**

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10 MINUTE GLUE

Edward Schlosser has developed a new glue which is applied to both surfaces to be joined. These surfaces are left dry—apart—for a few minutes. When DRY they are pressed together and PRESTO—the job is done. Any model can be built in 1/10th the time. TEN MINUTE GLUE is WATER-PROOF, HOT FUEL PROOF, FIRE PROOF (when dry) and WARP PROOF. For all model work except 1/16th and 1/18th sq. butt joints. You'll do sheeting planking and laminating in a matter of seconds without pins! NOT EFFECTED BY 100% RELATIVE HUMIDITY OR BY EXTREMES OF HEAT OR COLD WHEN APPLIED.

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ESMETAL 10 sq. ft. for $1.00 (12" width)
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Add 30c for packing, postage and insurance.
Foreign add 20% additional.
No C.O.D. or stamps please.

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RIDGEFIELD PARK 5, N. J., U. S. A.

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Fuel Tanks that ARE PRICED UNNECESSARILY HIGH

Fuel Tanks that FALL APART AT SOLDERED JOINTS

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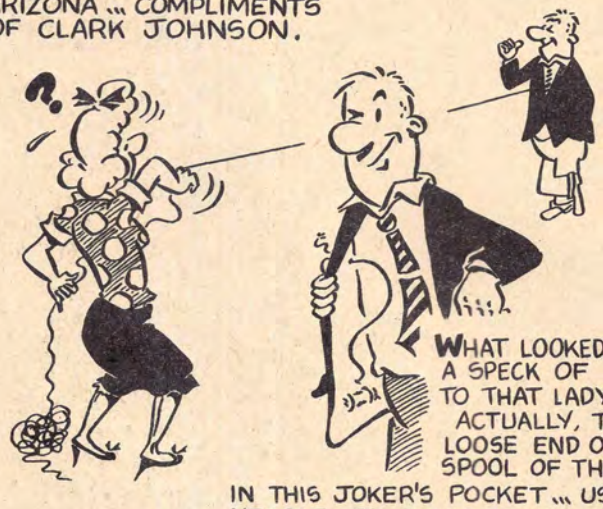
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EUGENE BAHLING, OF LA PORTE CITY, IOWA SAYS IT'S POSSIBLE TO DRAW AN OVAL ON A PIECE OF PAPER, USING A COMPASS .... AND—



HERE'S A 'SHADY' ONE FROM SUNNY TUCSON, ARIZONA ... COMPLIMENTS OF CLARK JOHNSON.

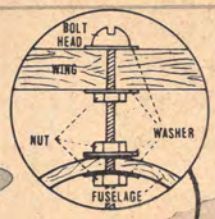


WHAT LOOKED LIKE A SPECK OF LINT TO THAT LADY, WAS ACTUALLY, THE LOOSE END OF A SPOOL OF THREAD IN THIS JOKER'S POCKET ... USE A NEEDLE TO PUSH THREAD THRU, BACK OF POCKET & OUT LAPEL!

What's Your Favorite Trick? Cash Prizes!

We're asking readers to send in their favorite original magic tricks. Air Trails HOBBIES will pay $25.00 for first one received and illustrated here. All you have to do is furnish us with a description of your favorite feat, include rough diagram or sketches if required. Send to "Trick Stuff" Dept., c/o Air Trails HOBBIES For Young Men, 304 East 45th St., New York 17, N. Y.

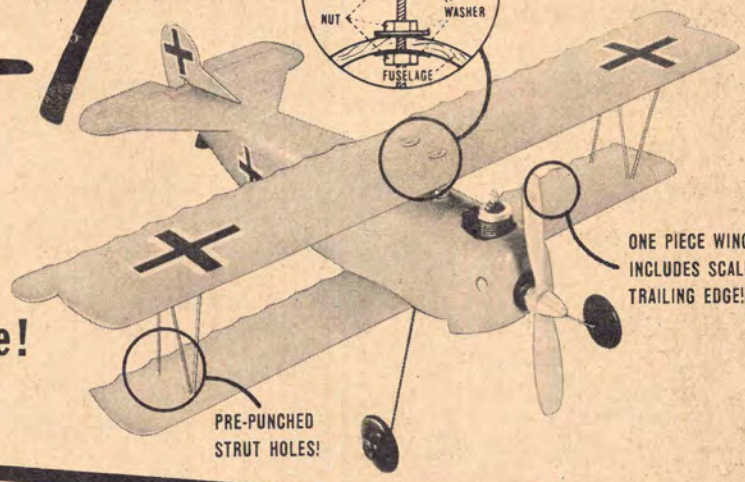
Fokker D-7



DRILLED SELF-ALIGNING WING BOLT MOUNTS!

authentic in every detail...

minutes to assemble!

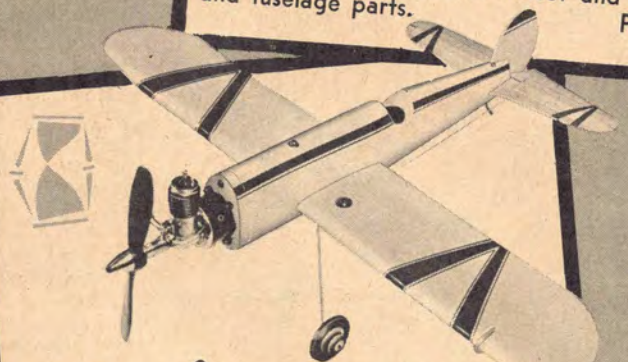


ONE PIECE WING INCLUDES SCALLOPED TRAILING EDGE!

PRE-PUNCHED STRUT HOLES!

For the first time, a biplane in a prefabricated, pre-finished kit, so authentic every aviation enthusiast will be proud to own and fly it. Featuring fully air-foiled and scalloped solid balsa wings, foolproof upper wing and landing gear bolt mounting, all ply-wood tail, built-in rudder offset and finished cowl and fuselage parts. Packaged with all parts in a die cut platform including Cub .049A engine, control handle, flying lines, decals, and simplified pictorial step-by-step building instructions. Wing Span approximately 18". At your dealer.

$7.50 Complete kit, less engine **$2.95**



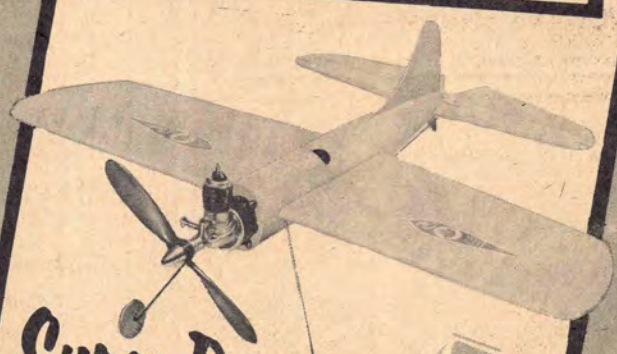
Sky Scooter

A completely prefinished, prefabricated model that assembles in minutes. Unique design principles enable anyone to assemble this exciting new model entirely with their hands. No special equipment or cement is needed. A single bolt locks the major parts of the model securely — interlocking slots hold all the rest. The kit is platform packaged complete with .049A Cub engine, prop, control handle and flying lines, decals and step-by-step pictorial instructions. Wing Span approximately 18". At your dealer. **$7.50**

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SPIRIT OF ST. LOUIS

(no engine—24" span) **$2.95**



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A new half-A stunt model completely prefinished for easy assembly. All parts are smoothly machined ready for use. The Super Ding features a symmetrically air-foiled solid balsa wing with a chord of 5½" and is 18" long. Platform packaged semi-assembled with a Cub .049A engine, control handle and flying lines, decals and easy-to-use pictorial instructions. At your dealer. **$7.50**

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Q/A

What's your question? You ask 'em and ATH's Experts Advisory Board will do its best to supply the answers

Nitrate-less Fuel for .045 . . . I am looking for a fuel formula for an .045 class engine. Most of the formulas contain nitro-methane, nitro-propane, nitro-benzine and other nitro mixtures. All these are unavailable over here. And I have been told that fuels cannot be sent over. There are a lot of chemical houses here in Germany, but they all tell me these mixtures are too dangerous to handle. Perhaps there is a substitute that they may have. I got a formula from a German modeler consisting of methanol, ether and castor oil, but this isn't hot enough for the smaller class engines.

Sgt. Wesley H. Shadle, Germany

● Your problem concerning fuel for an .045 engine is universal. All fuel mixtures made in this country for the smaller glow plug engines contain a large proportion of nitrates. Commercial fuel intended for use in the larger glow plug engines would be better than any home-made mixtures that do not contain nitrates.

In the event that you are forced to make your own fuel, several things can be done to improve performance and tend to overcome the lack of nitrates. To start with, the methanol or methyl alcohol used as a base for the fuel should be 99% pure and contain a very small amount of water. Three to 5% water content will hamper ignition quality. Another gain can be made by limiting the castor oil content to a maximum of 25%. This does not increase the life of the engine, but helps lower the firing temperature of the fuel. Glow plugs will also add a boost if you get the hottest firing type available.

Fauvel Monobloc . . . In "Air Progress" feature on page 30 of the Oct. '54 "ATHFYM" you say there are plans available for the Fauvel "Monobloc" AV-36. Could you tell me where and approximate price?

Jerry Hall, Hollister, Mo.

● We understand that construction plans for the Fauvel AV-36 Monobloc flying wing sailplane can be obtained through the Soaring Society of America, Box 71, Elmira, New York. Price is $65, including English translation.

Cutting Balsa into Strips . . . I recently purchased a large quaitity of plank balsa wood. I have a table saw with which I have been able to cut these balsa sheets, but I have been unable thus far to devise a means to cut the sheets into the desired strips.

Would like to know if you can advise me of some means of cutting these sheets into strips. Would like to be able to make several cuts at one time?

G. E. Neece, Fort Worth, Tex.

● Most wood companies gang-saw wood. For instance, they have several saw blades set upon one mandrel, spaced to the desired wood thickness. The saws are set up so that the wood is fed automatically. After the sheets are cut they are then gang stripped.

How Many Types of Warhawks? . . . I would like to know the official color scheme used on the P-40 Warhawk. How many different variations of this plane were there?

Philip Tobin, Chicago, Ill.

● Most P-40s were painted camouflage green; some had the combination of green and brown to blend into the landscape. There were approximately 13 different types of P-40s built; their designations were: XP-40, P-40, P-40B, P-40C, P-40D, P-40E, P-40F, P-40G, P-40K, P40L, P-40M, P-40N, XP-40Q.

Martin Aircraft Scholarships . . . I noticed in the Hobby-Model World department a mention of three scholarships, offered by the President and Vice-President of Martin Aircraft, for young engineers. I would like to know where I may obtain information about the scholarships. I am at present a student majoring in Aeronautical Engineering at the Boston University College of Industrial Technology.

John J. Sullivan, Jr., Roslindale, Mass.

● Open only to residents of Maryland and the District of Columbia, scholarships covering freshman tuition are being offered by this aviation company at the following schools: University of Cincinnati, Drexel Institute of Technology, Georgia Institute of Technology, University of Tennessee, and Virginia Polytechnic Institute.

Also open only to residents of Maryland and the District of Columbia is a four-year scholarship at Massachusetts Institute of Technology.

In addition, the company has scholarships covering tuition for junior and senior years open to men already enrolled at Penn State.

Horsepower and Thrust . . . I would like to know the difference between hp and lbs. of thrust. Is one hp the same as one lb. of thrust?

Albert Gaspich, Baltimore, Md.

● One pound of thrust equals one hp at 375 mph. Thus, a jet plane having a 5000 lb. thrust engine gets 5000 hp out of it at 375 mph. At 750 mph some engines will develop 10,000 hp.

Jaeger P-13 . . . I was glancing through the November 1945 issue of Air Trails when my eyes fell on a picture under the heading of "New Aircraft." It was a picture of a German experimental plane called the Jaeger P-13. It was supposed to do 1,500 mph. It was then I noticed the resemblance of the P-13 and the present-day Swedish research jet SAAB Draken. Please make like G-2 and deal out the info.

Marc Norman, Los Angeles, Calif.

● The P-13 ramjet fighter was designed by the famous German aerodynamicist Dr. Alexander M. Lippisch, who is considered the father of the delta wing shape. The P-13 never flew and as a matter of fact was only in an early construction stage at the end of the war. Lippisch's work has greatly encouraged other countries to proceed with the design of the triangular wing shape, and the Swedish Draken shows this influence very clearly, though it is definitely not a copy of the P-13.

Noise: Props or Engines? . . . My friends are having an argument. One says the motors make the noise that you hear when a plane passes overhead. And another insists that it is the props. Which is it?

Daniel Duran, Jr., New York, N. Y.

● The noise you hear when the airplane passes over is a combination of both engine and propeller; however, the propeller noise is more distinctive than that of the exhaust, especially if the props are in low pitch such as on take-off or coming in for a landing.



PBY-5A Catalina • "Old Dumbo"



B-26 Invader



B-25 Mitchell

All-Plastic Twin Engine Bombers



Get All Three Fellows You'll Enjoy Them

Never Before Such Superb Detail

Not little single engine planes but big twin engine bombers, molded in gleaming aluminum plastic for easiest assembly. Amazing detail and realism right down to the last rivet. Three-bladed props, landing gear, pilots, gunners, clear canopies, decals and full armament in each kit.

B-26 Invader
Kit P-6

World War II attack bomber. 16 machine guns, 6 rockets, auxiliary gas tanks,

B-25 Mitchell
Kit P-7

Armament includes 75mm cannon, 14 machine guns and 6 rockets.

PBY-5A Catalina
Kit P-8

"Old Dumbo" patrol bomber. Pontoons and under-wing torpedoes and decals included.

Get Monogram Models at your dealer. If none near, write to address below. Add 25 cents for postage, packing and shipment.

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10 Fabulous Prizes!

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$5000 Coupe de Ville

SECOND PRIZE
$1000 U. S. Saving Bond

THIRD PRIZE
$500 U. S. Saving Bond

FOURTH TO TENTH PRIZE
$100 U. S. Saving Bond

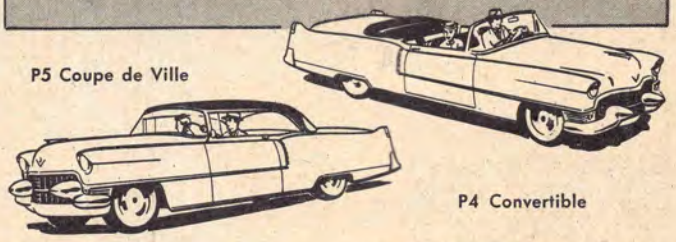
Grown-Ups Can Enter Too! Tell Dad, Mother, Others About It!

Complete this sentence in 25 words or less — "I like Monogram's new All-plastic Cadillac Model because —"

That's all you have to do to enter and be eligible to win a real $5000 Cadillac or one of nine other fabulous prizes. Write entry on Official Entry Blank packed with each Cadillac Model Kit.

Contest closes Midnight June 15, 1955. See the magnificent Monogram Cadillac Models and get additional information at your model and hobby dealer.

Two Magnificent Cadillac Models Each $2.95



P5 Coupe de Ville

P4 Convertible

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HOBBY CALENDAR

List your hobby club's public shows, exhibitions and contests here! There's no charge. Advise "ATH" not less than 90 days in advance. Give telephone of contact man if possible.

Address of contact man is in the same city as site of event unless otherwise specified.

OHIO—Cleveland, May 15. Annual air show at Cleveland Hopkins Airport sponsored by American Steel & Wire Div., U. S. Steel Corp., City Recreation Division and The Press, Control line carrier, stunt and combat. Prizes include pilot training. Charles Tracy, c/o Cleveland Press.

CALIF—San Diego, May 15. Aeroneers annual PAA-Load air-model contest. G. G. Wagner, Sr., 924 Evans Ave., Chula Vista.

CALIF—Arcadia, May 15 F.A.S.T. Club air-model team race contest. Les McBrayer, 1238½ S. 2nd St., Alhambra.

IND—Evansville, May 15. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.

FLA—Jacksonville, May 17. Flying Rebels' Dixie States air-model meet at Craig Field. W. J. Cornelius, Jr., 1815 King St.

N.Y.—Brooklyn, May 21. Mirror Model Flying Fair at Floyd Bennett Field. Ted Clodius, N. Y. Daily Mirror, 235 E 45th St., NYC.

CALIF—Moffett Field N.A.S., May 21-22. California model plane championships sponsored by State Exchange Clubs. H. S. Roberts, Sr., 5610 E. 17th St., Oakland 21.

KAN—Osowatomie, May 22. Modelers air-model meet. Alvin Scott, 218 Carr.

OHIO—Toledo, May 22. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.

PENNA—Philadelphia, May 22. P.M.P.B.C. model power boat races for Class A-E tether classes. Gustine Lake, Fairmount Park.

ALBERTA (Canada)—Calgary, May 22-23. C.M.A.C. 14th annual air-model contest. U-Control and free flight. John Bortnak, 1203 8th Ave., East.

IND—Newcastle, May 29. Amer. Miniature Racing Car Assoc. "Little 500" meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.

CALIF—San Diego, May 29. Air-model meet sponsored by Uptown Exchange Club and S.D. model clubs. James Saftig, 1560 Froude St.

PENNA—Bristol, May 29. Aeromodeleers 5th Annual Flying Circus. A. L. Abrams, Jr., 1031 Pond St.

CALIF—Fresno, May 29. F.G.M.A.C. air-model record trials Jim Scheidt, 2225 Brown Ave.

FRANCE (Paris)—May 29-30. International championship control line meet (2.5 cc.) for speed models.

ILL—Galesburg, May 30. G.M.A.C. air-model U-control contest, K. W. Freese, 90 Olive St.

KAN—Goodland, June 4-5. N. W. Kan. Gashoppers air-model meet. Kenneth Armstrong.

N.M.—Albuquerque, June 4-5. Sky Harbor Hobby Shop air-model meet. J. P. Taylor, 3190 W. Sandia Dr.

TENN—Nashville, June 4-5. Air-O-Bats air-model meet. C. V. Miller, 427 Deaderick St.

CALIF—Inglewood, June 5. Skywolves air-model record trials. D. C. Crystal, 805 E. Palmer Ave., Compton.

ILL—Chicago, June 5. U-Liners air-model meet. E. M. Holzbach, 14510 P. Union Ave., Chi 27.

CALIF—Los Alamitos, June 5. Inglewood Flightmasters air-model record trials. R. E. Moncrieff, 2108 Santa Fe Ave., Torrance.

N.Y.—Farmingdale, June 5. Republic Aviation Model Society's L.I. Industrial Championships air-model meet. A. W. Wardell, 2 Hunt Pl., Bethpage.

TEXAS—El Paso, June 5. Flying Diablos air-model record trials. Fred Lind, 1610 E. Yardell.

IOWA—Cedar Rapids, June 12. John Pavlis Memorial air-model meet. P. M. Marchal, Jr., 1837 8th Ave., S.W.

IND—Ft. Wayne, June 12. Mad Modelers air-model meet. W. A. Krull, 414 E. Washington.

OHIO—Cleveland, June 12. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.

MINN—Worthington, June 12. Thunderbirds air-model meet. Guy Williams, 102 14th St.

PENNA—Easton, June 12. Model Airplane Doctors' air-model meet. R. R. Sottosanti, 1113 Keene St.

N.Y.—Corning, June 12. Flying Sparks R/C air-model meet. W. E. Bliss, 47 Corning Blvd.

CONN—Hartford, June 12. Greater Hartford M.A.C. air-model team race. Richard Matava, 358 Prospect Ave.

TEXAS—Ft. Worth, June 12. Cowtown Sahib's air-model record trials. Ralph Tenny, 2409 Spiller.

CALIF—Inglewood, June 12. Skywolves air-model team race. D. C. Crystal, 805 E. Palmer Ave., Compton.

GA—Atlanta, June 16-19. Greater Southeastern air-model meet. Lloyd Wason, 315 Church St., Decatur, Ga.

KAN—Stanley, June 18-19. KC/RC Assoc. air-model meet. Len Marshall, 9115 E. 67th St., Kansas City 29, Mo.

MD—Baltimore, June 19. Balto. M.P.B. Club's model power boat race for Class A-E entries at Patterson Park.

N.J.—Millville, June 19. Garden State Aeronauts air-model meet. Andrew Canino, 116 Quince St., Vineland.

IND—Anderson, June 19. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.

MICH—St. Clair Shores, June 19. Emerald City Harbor air-model fair. H. A. Lewis, 21520 California.

CALIF—Los Alamitos, June 19. Thunderbugs PAA-Load air-model meet. F. L. Swaney, 527 E. 55th St., Long Beach.

OHIO—Strongsville, June 19. Flight-Masters air-model meet. D. R. Cowgill, 1567 Wyandotte Ave., Lakewood 7.

ILL—Harvey, June 19. R/C Club of Chicago air-model meet. R. E. Webb, 1303 W. 79th St., Chicago 20.

TEXAS—Beaumont, June 25-26. Optimist's air-model championships. Don Still, 790 Liberty.

MO—Kansas City, June 26. Flying Fools air-model meet. P. W. Asjes, 5313 Ralston.

CONN—Wallingford, June 26. Lufbery Circleers air-model team race. C. A. Orrill, Jr., 47 Carpenter Ave., Meriden.

PENNA—Collegeville, June 26. Cross Key Hawks air-model meet. George Moir, Main St., Mantua, N. J.

CALIF—Fresno, June 26. F.G.M.A.C. air-model record trials Jim Scheidt, 2225 Brown Ave.

MINN—Mankato, June 26. Modeleers-Exchange Club air-model meet. W. B. Thomas, Box 713, Lake Crystal.

MICH—Detroit, June 26. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.

MICH—Detroit, June 26. State Exchange air-model meet. F. P. Sposite, 9900 E. Jefferson.

N.Y.—Elmira, July 2-14. 25th annual National Soaring Championships. P. A. Schweizer, Soaring Society of America, Box 71.

CALIF—Long Beach, July 18-24. National Championship Model Airplane Contest at Los Alamitos Naval Air Station. Academy of Model Aeronautics, 1025 Connecticut Ave., N.W., Washington 6, D.C.

GERMANY (Brunswick), Aug. 27-28. International championship A.2 model glider contest (Swedish Cup).

GERMANY (U.S.A.F. air base), Sept. 3-4. International Wakefield rubber powered and F.A.I. gas powered competitions.

Model Car News

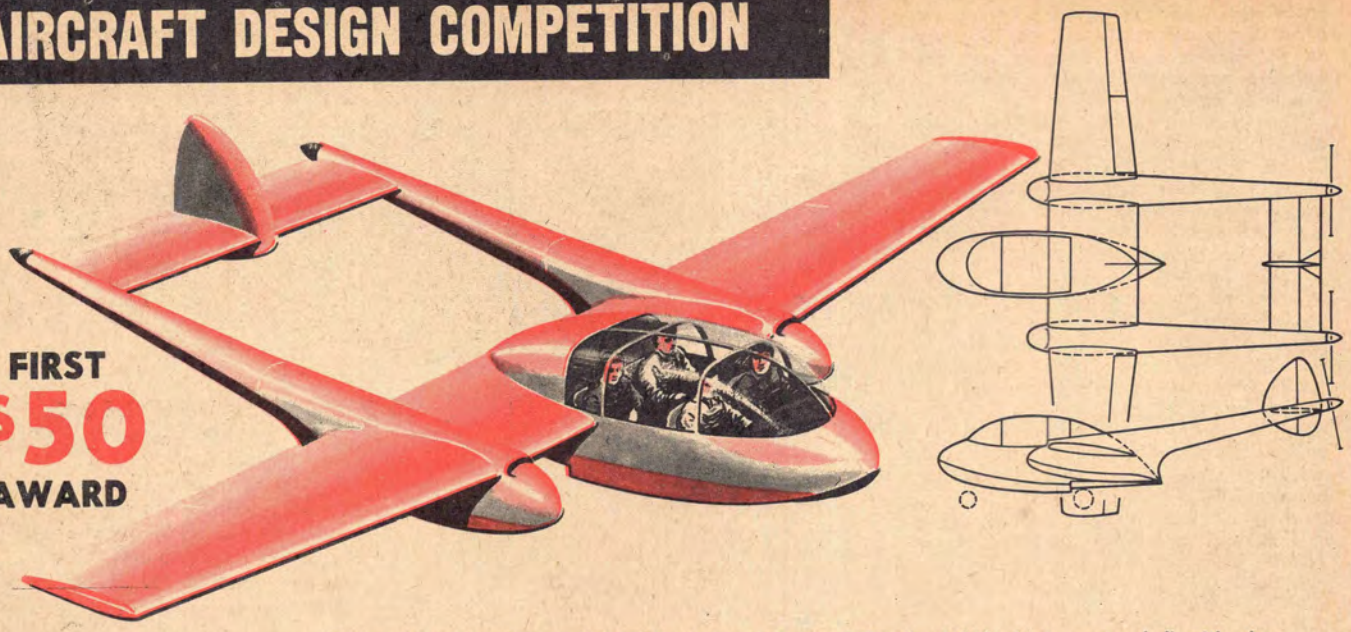
(*Continued from page* 16)

Junket to Daytona Beach involved Guy Richards (Akron, O.), Howard Fox and "Pop" Owne (Washington, D. C.) this year. Mid-winter trip to Florida is a big thing for the rabid model car enthusiasts, since they have had a choice of three tracks—Jacksonville, Daytona and Eustis—and then, too, there is the

(*Continued on page* 63)

AIRCRAFT DESIGN COMPETITION

FIRST $50 AWARD



Twin-engine executive amphibian by Leonard Lortz of Seattle, Wash. Main center hull with clear plastic enclosure has a cabin capable of accommodating four. The two outrigger hulls contain the powerplants, each developing 225 hp, as well as housing the wheel landing gear. The outriggers are canted at an upward angle toward the rear in order to keep the pusher propellers out of water spray. The power is transmitted from the engine to the props by means of extension shafts. 185 mph.

SECOND $25 AWARD

Long-range guided missile by Gareth J. Kulakowski, Hamtranck, Mich. The craft is on style of the Intercontinental Ballistic Missile, capable of 4000-mile range. It is powered by two turbojets of 10,000 lbs. thrust each, has speed of 1000 mph, carries a nuclear or hydrogen warhead.



THIRD $10 AWARD



Pusher VTO by Marshall Wilson of Austin, Texas. Unusual feature of this airplane is the 8 ft. spinner which is stationary while props rotate. The spinner carries the telescopic landing gear. Span of the airplane is 28 ft. Top speed is 550 mph. Engine in rear.

Rules governing this "aircraft of the future" competition are as follows: Three-view sketches of the envisioned aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views. Give sketches of the complete airplane or space craft in three-quarter front and rear positions.

Detailed information on the powerplant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The design may be of any type; space craft, commercial, military planes (fighters, bombers, troop transports), planes for the private flyer and sporting or racing airplanes. The entry each month judged the most practical or of the greatest significance will receive an award of $50; $25 for second place and $10 for third. Mail entries to Airmen of Vision, c/o Air Trails HOBBIES for Young Men, 304 E. 45th St., New York 17, N. Y. The editors regret they cannot enter into any correspondence on submissions.

(*Continued from page* 61)

NASCAR Speed Week to take in too. Most of the car operators itch for a try on the Eustis track, since it was the first one where the over-150 mph speed had been attained.

This year, only the Daytona track was in operation, presided over by the famed William Thomas family. Model plane men may be interested to learn that Thomas Sr. was designer-manufacturer of the World War I Thomas-Morse Scout single-seater. Anyway, this year ten contestants showed up at the Daytona track; in addition to the three "Northerners" mentioned above, there was a contingent from Atlanta, Ga., to add their Southern drawl and strong words when the starting got tough.

Modelers were glad to see a transplanted Northerner, Commander Luke, back in action again, with his old Challenger now magneto-equipped. The Commander held the Custom Proto for an hour or so back in '48 or '49, swapping it back and forth with the late Joe Ilg Jr., till Joe finally won out. At Daytona, Fox had a rough job keeping his car running, but de-tuned it a bit and took the last heat with 141.06 mph; seems the Daytona track gets rougher and bumpier each year. Luke made a fine comeback with his ancient car, running second with 137 mph.; this would probably have been good for 142 or better at Anderson. Third was Richards with 134, while various troubles plagued the other entrants, but our informant, Bob More, notes that good sportsmanship was most evident, and all had fun.

International Association of Automotive Modelers' slate of officers for 1955 is as follows: Pres.—Tim McLaughlin (Chicago, Ill.); V.P. and Editor of I.A.A.M. Bulletin—Philip Jensen (Cohoes, N. Y.); Treasurer—Joseph Molloy (San Pedro, Calif.). Prospective members may obtain information of the organization by writing to the new Secretary, Leonard Liebhaber (119-24 147th St., S. Ozone Park, N. Y.). Editor Jensen tells us that January issue of the Mercedes-Benz dealer newsletter, mailed to M-B dealers all over the world, contains a write-up on the IAAM, along with a pic of Joe Molloy's 1939 Mercedes-Benz Grand Prix car. IAAM members have turned out some beautiful scale car models, and we hope some of these builders will send us a few good photos, so that we can show ATH readers how IAAM men keep occupied.

Mac-III "AES"

(*Continued from page* 35)

of experimenting—but then that's just what we intended for the receiver; it's an "advanced experimenter's special".

Parts Requirements for 50 mc. receiver (see text for substitute components needed for 27¼ mc.): L1, see Fig. 3. L2-UTC SSO5 choke with most of core removed. Relay-Sigma 26F, 8000 ohms. All tubes, Raytheon. Sockets, Cinch #5WC. RFC-10 microhenry, ESSCO. C1-Erie #535-OR7 trimmer, C2- CRL Type TCZ. C3, C6- RL type D6. C4, C5, C7- CRL type DM. C8-Barco type P75-1. R2- sub-miniature variable resistor-CRL B16-124. All other resistors, ½ W. carbon (⅓ or ¼ W. better, if available). Core metal for modified choke, L2 ESSCO. Plastic case-Bradley #684H.

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PERFECT IN DETAIL AND SCALE



HAWK THUNDERSTREAK

Loaded with armament, this silver and blue fighter has 24 rockets suspended from its wings. Authentic in detail even to the "greenhouse" canopy. Complete kit including instruction sheet and decal.

Catalog No. 606.....50¢



HAWK SWIFT

This famous British fighter is a *must* for your collection. Molded from patterns made from data and specs furnished by the manufacturer, this model is perfect in every detail. Complete kit including instruction sheet and decal.

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See these and many other kits at your dealer TODAY!

BUILD A COMPLETE COLLECTION OF HAWK PLASTIC SCALE MODEL AIRPLANES

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Dart XF 92A Cat. No. 605.....$ .50
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Easy to make . . . for Gifts or Personal Use

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$4.98



FOR BOYS AND GIRLS

SIZE 6 5-6 years (average)
SIZE 8 7-8 years (average)
SIZE 10 9-10 years (average)
SIZE 12 11-12 years (average)

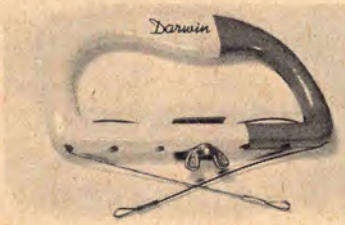
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A fascinating NEW Genuine Leather Kit *complete* with fringed shoulder epaulets and pockets, "jewel" and nailhead trim—pre-punched and ready to assemble. Lacing needle included.

Get your ARROW BRAND WEST-KIT today at your nearest Hobby Dealer or write

ARROW LEATHER GOODS MFG. CO.
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DARWIN DELUXE ALL METAL ADJUSTABLE CONTROL HANDLE



NOW, no more need to have 2 or 3 handles. The Darwin all-metal all-span handle is versatile enough to fly ½ A, speed, sport or stunt at a span of your own selection. Easy adjusting mechanism locks secure and will not fray cable. **$1.25 each**

DARWIN MODEL AIRCRAFT COMPANY
2430 Tremmel Avenue Ann Arbor, Michigan

Tech Topics



BELL AIRCRAFT CORP. unveiled its convertiplane, the XV-3, pictured above. Craft features tilting rotor principle in which the rotors are in upright position for take-off and landing, and tilted forward to act as propellers in horizontal flight. Top speed of the four-place XV-3 is estimated at 175 mph. Bell also tested the jet-powered VTOL, vertical take-off airplane, consisting of a metal glider fuselage equipped with Cessna wings from which tips were removed. Mounted at each side of the fuselage is a Fairchild 1000 lb. thrust jet engine. For vertical take-off, both engines are tilted downward; for horizontal flight, they are pivoted to normal position, parallel to fuselage.

DESIGNERS of supersonic airplanes lately have been faced with an entirely new problem. While heretofore big "pauser" was the behavior of the plane at sonic speeds and higher, the new bugaboo turned out to be in the lower speed range. Unpredictable and uncontrollable gyrations of the aircraft imposed severe stresses on the structure, causing disintegration of the plane. One such accident, to a F-100, caused the death of North American Aviation's engineering chief pilot George Welch, and consequent grounding of all Super Sabres until the real cause was determined. In one of the most thorough and complex accident investigations yet made (more than 3,000 hours in duration), North American discovered that the failure was due to an extremely high angle of yaw at speed less than top speed of the airplane, which imposed strain in excess of the design limit of the craft. A 27% increase in vertical tail area and lengthening the wingspan by one foot corrected the condition. As a result, all F-100s were ungrounded as soon as the modifications called for were completed on them.

A REPUBLIC F-84F Thunderstreak of the 509th Fighter Bomber Squadron, piloted by Major Harry K. Evans, flew from George AFB, Calif., to Langley AFB, Va., a distance of 2390 miles, in 3 hours, 55 minutes, averaging 605 mph. . . . Elmira, N. Y., will celebrate 25 years of soaring activity during the National Soaring Contest which will take place at the Glider Capital of America from July 2 to July 14. . . . The Powder Puff Derby, All-Women Transcontinental Air Race, will start this year from Long Beach, Calif. on July 2 and end at Springfield, Mass., July 6. More than 50 airplanes are expected to participate.

BLINDFOLDED, with match books and cotton pads over his eyes, a black mask over his face, and a black sack with chain and lock covering his whole head, 20-year-old Alessandro di Cagliostro of Cleveland took off solo in a Piper seaplane from Biscayne Bay at Miami, Fla., and after several low passes and turns in the air came down to a perfect landing on the water. . . . A Navy F3H-1N McDonnell Demon established a new unofficial climb record when, piloted by the company's test pilot Chester V. Braun it climbed to an altitude of 10,000 feet in 71 seconds. Previous record was held by a North American FJ-3 Fury, Navy jet fighter, which reached 10,000 ft. in 73.2 seconds. Both climbs were made from standing start.

GLENN L. MARTIN CO. wheeled out its jet-propelled flying boat, XP6M-1 Sea Master. World's first multi-jet flying boat, craft is powered by four Allison J-71 engines with afterburners, located in square double-nacelles on top of the swept wing. Hull is long, narrow, ending

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FULLY FLIGHT TESTED!





NEW ORIGINAL CONSTRUCTION!

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21" WINGSPAN
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BEST-FLYING PRE-FAB ½A
MODEL AVAILABLE
AVAILABLE WITH OR WITHOUT ENGINE!

Complete with everything, less engine—ready for use with either Cub .049A or Space Bug Jr. engines!

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Special Assembly Jig right in box, makes new easy to build super-lightweight model.

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SURF-SKIMMER

$8.95



Complete with Space Bug Jr. engine, and all accessories. Engine comes mounted in place. Just paint and trim, and you're ready to sail a real sleek speedboat!

F4U-5 CORSAIR

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New 17½" wingspan ½ A Flying Scale of famous Navy fighter. All finished balsa parts, and plastic accessories. For controline flying, or as a beautiful display model.

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If no local dealer is convenient, mail orders will be filled by Enterprise Model Aircraft Dept. T15, Mineola, N. Y. Please include 25c packing and postage.

in huge T-shaped tail. Craft is designed as mine-layer and photo-recon. Cruising altitude above 4,000 feet, speed in excess of 600 mph. . . . The new Douglas XC-132 turboprop military transport will be even larger than C-124 Globemaster. Payload expected to be 80 tons, three times higher than that of the C-124. . . . Domestic airlines used 685,534,977 gallons of gasoline and 7,145,093 gallons of oil in 1954.

BURIED TREASURE FAN? The Radiac Co. of New York City has available for sale an electronic metal detector capable of finding metal objects buried at appreciable depth. Device is outgrowth of mine detector used by Armed Forces during the war. . . . One airplane of the B-47 class can carry in its bomb bay an explosive force greater than that of all the bombs dropped during World War II, said Maj. Gen. Floyd B. Wood, Deputy Commander Technical Operations, speaking at a meeting of the Institute of Radio Engineers in Boston.

ESCAPE from high-speed aircraft by means of ejection seat was first practiced by the German Luftwaffe during World War II. Some 60 successful escapes by this means were made by Nazi pilots from Me-163 rocket planes, Messerschmitt Me-262 jet fighters and others. German research on the subject started as far back as 1939, when it became obvious that some method other than physical effort was needed to abandon an airplane flying at a speed in excess of 400 mph. . . . Almost 500 million flashbulbs for photographic use were sold in 1954.

What's in the Name . . .

EDWARDS AFB?

(Muroc, Calif.)



Named after Captain Glen W. Edwards, killed on June 5, 1948 while testing the Northrop YB-49 Flying Wing bomber in the vicinity of Muroc Air Force Base. Captain Edwards was born in 1918 at Lincoln, Calif. He received his B.A. degree from the University of California and enlisted in the Air Corps in 1941, receiving his wings and commission of second lieutenant a year later. During World War II, Captain Edwards flew 50 missions in Europe as pilot of Douglas A-20 light bomber and was awarded the Distinguished Flying Cross with 3 Oak Leaf Clusters, and the Air Medal with 5 Oak Leaf Clusters. After the war he was assigned as test pilot with the Flight Test Division of the Air Materiel Command, where he flew such airplanes as the Douglas XB-42 Mixmaster and others. For his work as test pilot, he was described by an Air Force official as "one of the most outstanding test pilots of the Flight Test Division, Air Materiel Command." On January 27, 1950 the Muroc AFB was named in his honor at an impressive dedication ceremony.

. . . Meteorites that bombard the earth were formed almost 5 billion years ago, indicate tests made by Argonne National Laboratories and University of Chicago physicists.

APPROXIMATELY 920 AIR MARKERS exist in United States to guide aviators on their cross country flights, according to the Civil Aeronautics Authority. . . . To facilitate training of Air Force students in high-speed, high-altitude celestial navigation, Link Aviation Inc. has developed the D-2 Navigation Trainer. Device is composed of a 22-ton spherical structure set on two axes to permit it to move into any position. Over 500 tiny lights, accurately positioned on the inside of the dome, duplicate the major stars of 31 constellations. Speeds up to 1,750 mph and altitudes of 100,000 feet can be simulated.

ROTOCHUTE, a container equipped with helicopter-like rotors, for dropping supplies on beacheads and other confined areas, has been developed by Kaman Aircraft Corp., helicopter builders. Device permits aircraft to drop supplies from low altitudes and at high speed with greater accuracy than possible with parachute. Rotors fold back 90 degrees and telescope to one-half normal size, which permits container to be carried on external bomb racks of jet fighters.

TV STATION not much bigger than a cigar box and capable of sending clear closed-circuit pictures by cables to screens of standard receivers developed by Allen B. DuMont Laboratories.

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8000 OHM RELAYS
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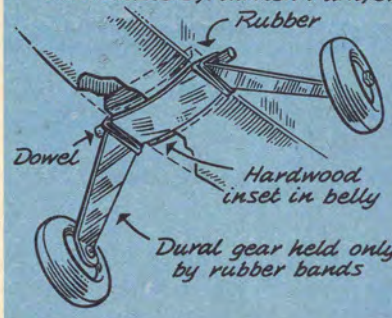


Now, a plastic grip handle that adjusts for SPEED . . . SPORT . . . STUNT. And get these "extras": adjustable distance between lines; adjustable line length; nylon coated lead cable; preformed ends.

Also...
Look For The New PRO-fessional LINE BATTERY CABLE . . 60¢

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214 W. DAUPHIN STREET • PHILADELPHIA 33, PA

R/C flexible gear is bound across fuselage bottom with rubber strands. Well-tested, foolproof, claims A. T. Masters, Fairview Park, Ohio.

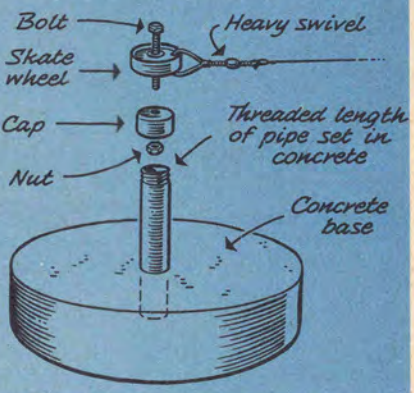


Sandpaper is ideal material for patterns — grit prevents pattern slipping out of position; material very durable suggests M/Sgt. R. M. Valentine, A.F., Laredo A.F.B., Texas

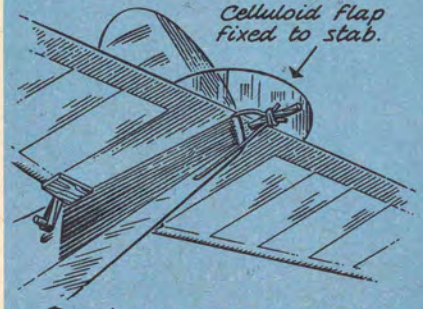


HOBBY MODEL Sketch-book

Have you developed something new in construction, control, operation or finishing of model craft? Send a rough sketch—we redraw it and pay $10 if accepted. Only original ideas; no entries returned.

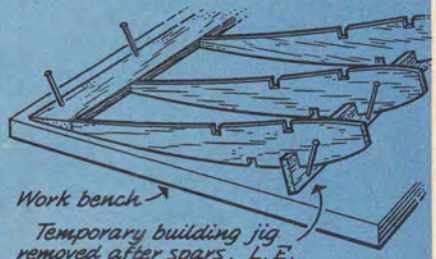


Tom Rodd, New York, N. Y., built portable pylon for midget race cars using inexpensive parts. Base is cake tin or small dish-pan filled with concrete. Used on school grounds, parking lots.

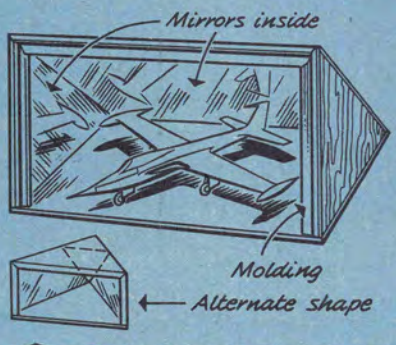


Thermals often abound in warm, wet weather, hence need for dethermalizers. Thin celluloid flap protects fuse from being put out by raindrop — Submitted by Ronald Williams, Hicksville, N.Y.

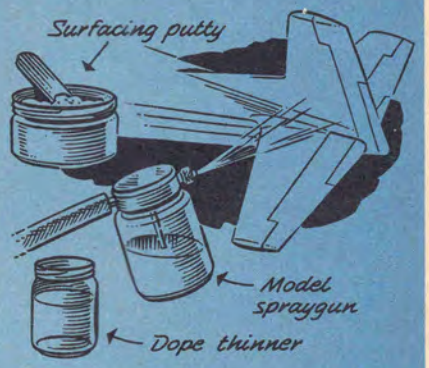
Easy assembly of under-cambered wings is idea of Carl Dodge, E. Cleveland, Ohio. Inverted assembly, use of temporary jig assures accurate T.E. angle —



Temporary building jig removed after spars, L.E. strips are assembled & dry —



Reflecting display case for scale models has plywood frame, molding on inner edges, inclined mirrors inside. Swell for mantel or bookcase says Rudy Stocek, Little Ferry, N.J.



Four parts thinner, one part surfacing putty, well mixed & applied by spray, gives super smooth surface when sanded & polished reports Jerry Jacobsen, Atlanta, Ga. Follow with color—

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Under Control

(*Continued from page* 13)

R/C equipment, free beer and pretzels, etc. Many visitors brought new planes; among them were a Cub J-3 scaled up to 7½ ft. span, by Joe David of Toledo. It weighs 11½ lbs. and is framed entirely in white pine. A demonstration of the use of fiberglass was most interesting. Ernie Kratzet, who sent us this report, says that the "Convention" was actually lots less work than had been anticipated, and his group heartily recommends this sort of meeting to other areas. Those who want to try it may obtain more details from Ernie at 1112 Book Bldg., Detroit 26, Mich.

A big R/C meet for the Midwest area is being planned bv the Kansas City R/C Ass'n., to be held around the middle of June, exact date depending upon AMA sanction. Full details may be had from Pete Petersen (5725 Prospect Ave., Kansas City 30, Mo.). Last club contest was won by Max Boal.

First 1955 meeting for the Milwaukee Flying Electrons was held at their flying site, Aeropark Airport, and drew 35 members. Flying session after meeting was slowed a bit by 30 degree temperature, but about 15 flights were logged. The big Annual Flying Electron Flyspiel has been set for July 24; it will be a Double-A meet, with plenty of prizes. Vic Weissbrodt, who sent this news, told of a new hazard to R/C flying; he was operating his plane on frozen Pewaukee Lake, and as it glided in after a good flight, it struck the mast of a rapidly moving *ice boat!* Wing demolished, but fiberglassed fuselage came through the ordeal O.K. Vic has decided to fly at the Airpark hereafter!

Club Member Al Mathes is building an 8 ft. Cub with six-channel tone equipment, while club V.P. Al Secklin has an Electra with Arden .09, and a Mac II to guide it. Marcy Inkman has a Buzzard blown up to 8 ft. span, and equipped with his own 3-channel transistor receiver.

Doings in the Pacific Northwest are chronicled by Miles Wilson (819 E. 41st Ave., Spokane 36, Wash.), who has just finished building a Custom Cavalier with twin rudders, Forster .99 engine, and RME via a Babcock single-channel receiver. Trick here is that deBolt Multiservos are used, with micro switches to cut in or out the controls desired. Plane was built following the advice of Frank Madl of Chicago, who has had 13 years experience with the same type of ship.

The Cav weighs 11 lbs. and has 9.7 sq. ft. of wing area, and Miles says it has almost as much plywood in it as it has balsa. Seems the boys go in for big jobs in his area; there are seven giants being built in Spokane alone. Most are Cavaliers and Taylorcraft, but Hendrik Perry has a 10 ft. span Cub with twin-cylinder engine and homemade 6-channel receiver, using surplus audio filters and Babcock-Bonner servos. 2000 sq. inches of wing area!

In view of all this giant plane activity, Miles and his local R/C cohorts are understandably upset at our random comment in the discussion of 1955-56 rules (March 1955 issue) that the suggestion has been made (among others) to limit contest R/C planes to 10 lbs. total weight. Now it must be noted that this has just been suggested; rules for next two years are set, but modelers are already making suggestions—as they should—for changes they would like to see when new rules are made up to go into effect January, 1957.

Miles also takes exception to the provision in the rules stating that a modeler can only enter one plane in a contest, and can fly in either rudder-only or multi-control classes—but not both. He points out that some of the R/C events at certain meets out his way consist of only two or three entrants, and if they could fly in both classes, it would make for a much better contest. Well, here we come to the point that *all* AMA rules allow the Contest Director quite a bit of latitude to make decisions affecting local conditions; possible rules changes are supposed to be announced well ahead of time, of course, but we don't think anyone could complain if the C.D. allowed entrants to fly in both classes, just to make a contest out of what might otherwise be a solo affair.

Technical Notes. At a recent meeting of the KC/RC, Paul Runge suggested a circuit for multi-control use, which consisted of a Mini-Mac followed by a CK526 voltage amplifier and a 1AG4 relay tube. This is much the same idea as that we showed here last month, and used by Paul Johnson; relay in plate circuit of the M-M is worked by on-off carrier, while with the carrier on, an audio tone works relay in the 1AG4 plate circuit. This arrangement seems to have taken the country by storm, as we have heard of many versions of the same thing, from other experimenters. For example, Pete Bliss used a M-M, but

(*Continued on page* 71)



New! SUPER —self STARTER

(Patent Applied For)

	INDEX
SS-1	ALL THIMBLE DROME
SS-2	WEN-MAC .049 OK CUB .049B OK CUB .049 DIESEL McCOY .049 ALL ¼A ENGINES WITH BEAM MOUNTS
SS-3	K & B .020 OK CUB .049A & .049X SKY FURY .049 WASP .049 ATWOOD .049 & .051
SS-4	McCOY "9" McCOY .049 DIESEL OK CUB .099 OK CUB .075 DIESEL

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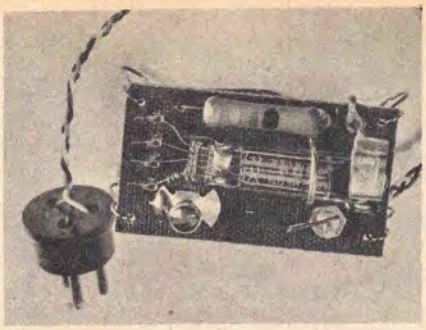
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CONTROLAIRE SM-1 RECEIVER

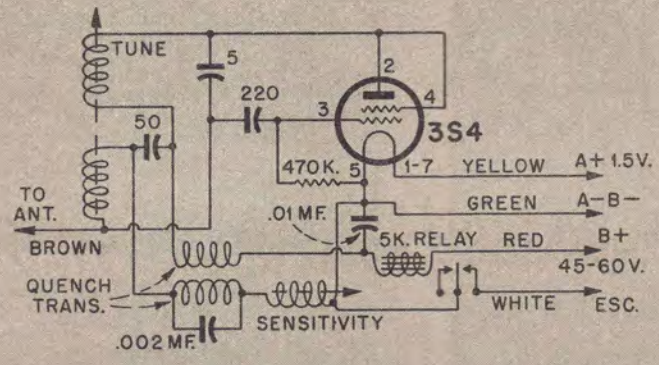
■ This single hard-tuber is one of the smallest commercial receivers on the market today. It is sold less relay; the relay must be mounted separately from the receiver, but with a relay such as the Neomatic, you have a super-lightweight outfit, suitable for planes in the Half-A class.

The set is mounted on both sides of a linen-bakelite chassis, and is fitted with corner hooks for rubber band mounting. If mounted via foam rubber, the latter should not be wrapped around the set in such a manner that it can contact the various high-frequency parts of the receiver, as moisture in the rubber may prevent proper operation.

Sub-miniature parts are utilized throughout and one reason this hard tuber can be so small is that the designer (Jack Port—1953 Nats R/C winner) has used a unique quench circuit that does not require the normal two-winding quench transformer. Sensitivity adjustment is made in a different manner than with other single-hard-tubers; you set sensitivity by altering the LC ratio—that is, the ratio of inductance to capacity of the tuned circuit.

As will be noted, the Sensitivity control is a small capacity connected directly across the grid and plate of the tube. To increase sensitivity, this capacity is lowered; of course, this will change the tuning a bit, so you then reset the slug core in the tuned circuit, to bring the receiver back to transmitter frequency. While this may sound a bit complex, it is actually very quickly learned. Furthermore, the set holds its adjustment well, so you won't have to adjust it often.

Optimum operation of the receiver is had with relays of about 5000 ohm re-



■ This single hard-tuber utilizes a form of sensitivity control not often seen in receivers made in this country, but popular in England. As you will note from the circuit, sensitivity is adjusted by means of a slug-tuned coil, and the frequency control is also of this type.

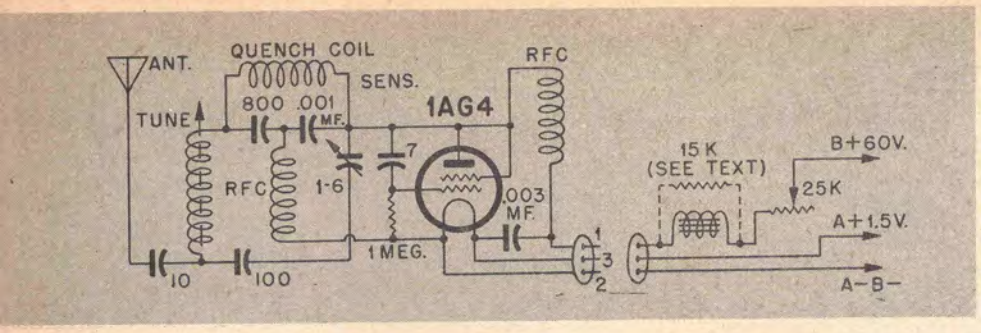
The entire receiver is contained in a compact aluminum case that comes apart upon removal of two self-tapping screws. This style of case is easy to mount in your model—just cement the bottom to a pad of foam rubber, with the latter cemented to floor or a bulkhead. The two tuning screws project from the top of the case, as does the top half of the tube.

As with all hard tubers, sensitivity adjustment should be checked before using the set; the Sens. screw is turned downward—after loosening the locknut—until the plate current drops abruptly; then turned upward again (counterclockwise) till the current jumps back up. Next it is given another quarter turn in the same direction and locked. Final tuning for frequency setting should be done at least 75 yards from the transmitter.

The instruction sheet emphasizes that all rudder and other metal control linkages should be bonded together to eliminate "static" that might lead to erratic operation (this is a wise precaution with any *hard* tuber). Battery voltages should not be allowed to drop below .1 for the A and 45 V. for the B.

The model S-1B supersedes the Model S-1 and is the same electrically, but the former model was not encased. The makers will convert any of the earlier models to cased type for a small charge, however.

The S-1B is sold either with or with-



sistance, though use of higher resistances will allow good results, but with lower plate current. The maker recommends the Kurman, Sigma and Neomatic relays. The latter two are most often available in resistances around 7-8000 ohms, and will work well with parallel resistance (as shown dotted in the diagram) to bring the overall resistance down to about 5000 ohms.

While a series variable resistor is not normally used with hard tube receivers, one is shown here, and is used simply to cut the plate current down to about the level you could normally get with 45 V.; as the 60 V. battery drops down, the resistor is reduced in value, to hold the plate current at the desired level. If it is intended to use 45 V. batteries at all times, the variable may be omitted.

This receiver is sold in both finished and kit form; latter includes wound coils and chokes, drilled chassis. The instructions furnished with either are most comprehensive, and include much useful information on operation, mounting, relay adjustment and so on.

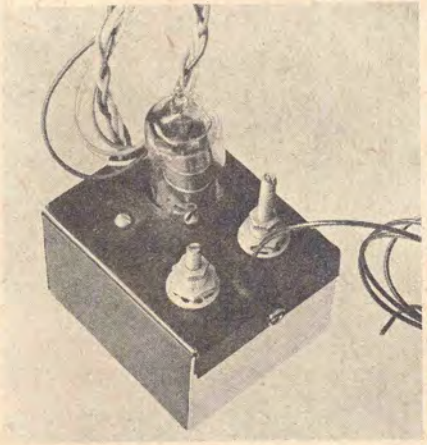
Specifications

Controlaire Receiver Model SM-1. Uses one 1AG4 tube. Size about 2 x 1¼ x 1⅛" overall; relay to be mounted separately. Set weighs .83 oz. with tube and power cable. Screw adjustments for tuning and sensitivity. 24" antenna recommended.

Battery Requirements

60 V. B battery with series resistor is recommended. Idling current—1.8 ma. on 45 V., 2.6 ma. on 60 V. without series resistor. Drops to .3-.5 ma. on 45 V., with signal. A battery—1½ V. at 40 ma.

H AND M RADIO CONTROLS S-1B RECEIVER



out relay, but comes with tube. The Neomatic relay is fitted to those sets that are sold complete. An accessory kit of all items needed to finish installation in your model (except batteries) is also available.

This receiver may be had direct from the makers, or through Hobby Shops. No kits are available.

Specifications

Receiver Model S-1B. Uses one 3S4 tube. Case size is 2¼ x 1¾ x 1¼" high; tube projects up another 1¼". Weight with tube and relay—2.9 oz. Screw adjustments for tuning and sensitivity. 24" total antenna length recommended.

The four-wire power cable includes escapement leads. 60 V. B supply recommended; will work well on 45 V.

Battery Requirements

On 60 V. B battery, plate current idles at 3.4 ma., drops to 1.5 ma. on moderate signal. On 45 V., current change is from 2.4 to 1.0 on same signal. A battery drain is 100 ma. at 1½ V.

Next issue—don't miss

THE GAZISTOR

by Wells E. Bliss, K2IQL

This home-built radio control receiver utilizes a transistor with a gas tube.

REARWIN GAS MODEL



56" Span. Radio or free flight. A new scale beauty. Superset features, plastic spinner, carved prop, rubber tired wheels, concealed motor, and ready cut wing ribs. Uses .14 to .23 motor.

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NORTH AMERICAN B-25 GAS



67" Span. 1" Scale. Free flight or radio control. Set has two 4¼" alum. cowls, scale rubber tired Veco wheels, planked type body, full size drawing, etc. Model uses two "19" or "23" motors. Const. Set, less motors **$20.00**

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32" span, 1" scale. Const. set. Rubber driven ..$4.50

Elf 4-Cyl. Gas Motor



Elf 1-3 h.p. 4¼" wide. Price $49.50

Grumman-F3F1



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N. American B-25



33½" span. ½" scale. Con. set. Rubber driven ..$4.00

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JOB CAREER SCHOOL GUIDE FOR YOUNG MEN

WAS POP IN THE NAVY? Even though it's come to our attention a little late to permit many of our readers to meet the May 15 application deadline this year, we'd like to pass on the word about new scholarships just established for children of *enlisted* men in the U.S. Navy, Marine Corps or Coast Guard. You are eligible for these whether your dad is on active duty, retired with pay, or deceased . . . and whether you're a real chip off the old block, legally adopted, or a stepchild. Awards are for $250, and may be used to help you go to college, vocational school, or take business or other training "which will enable the recipient to make more valuable contributions to society than would otherwise be possible."

The sponsor of these scholarships is the Navy Wives Clubs of America. Application forms and other information may be had by writing Mrs. Genevieve M. Harris, Secretary of the Scholarship Foundation, 3407 Meadowbridge Road, Richmond, Va. (The filled-in applications must be submitted to the selection committee at the Navy Bureau of Personnel by May 15.)

JOB LOOKS FOR THE MAN. Sure, fellows still look for jobs, but these days it's often the other way around in the case of those with the right training—and nowhere is this more true than in the field of engineering. We're not talking about the innumerable want ads for engineers in newspapers, but the more interesting phenomenon of campus recruitment of college seniors about to graduate, by representatives of industry.

Each spring these employment scouts flock to the collegiate greenswards bent on finding new human raw material for their companies. Many of them have a regular, lengthy itinerary. Their coming is heralded by notices on bulletin boards and special announcements. On their arrival they give talks to classes, interview individuals, answer questions and just plain visit with the boys. Sometimes the competition gets real spirited, with many scouts vying for the services of a small handful of blasé seniors. And one scout not long ago, engineers will tell you, sang so sweetly that he walked off with the entire graduating class of E.E.'s at a large Eastern university.

Typical as a scene of more than average recruiting competition is Parks College of Aeronautical Technology, a part of St. Louis University. Since 1948, this school has provided the aviation industry with more graduates in aeronautical engineering and aircraft maintenance engineering than any other college in the U.S. And this spring the Parks campus was visited by recruiters, seeking men chiefly in the two categories named, from a total of 16 major aircraft companies. They were all there — Boeing, Chance Vought, Grumman, Sikorsky, North American, etc.

But you can bet that no one scout managed to snag the whole class! What with aviation being a number one industry and offering a future in all directions, the opportunities are too widespread and diversified to encourage mass hiring by any one company.

CAREFUL WITH THOSE ARROWS, BUD. The Indian crept through the night, past the sleeping sentry, and settled himself in the shadows to wait while his intended victim finished his climb. As the white man came into clear silhouette, he pulled back the bow string and released the slender arrow with a prayer of hate. A cry, a clatter, the startled voice of the sentry . . . but the native was already a part of the deeper darkness from which he came, secure in the belief that once again his people had been avenged in some measure against the invaders who had taken over their hunting grounds.

The wild frontier and days of Davy Crockett, huh? Frontier, yes — but in South America, and the time was March, 1955. The victim was a worker in the Rio del Oro oilfields who had climbed up the steel ladder of a storage tank to check a gauge, and the "sentry" was a watchman who probably figured that the floodlights were sufficient deterrent to allow him forty winks. The Indian was a member of the Motilón tribe who come down out of the foothills at this time of year to fish and hunt.

The Motilóns refuse to be assimilated, carrying on sniping tactics against encroaching civilization despite their country's laws. For them it is a losing game. You'll remember our article in the January issue on geophysical exploration as a career, with emphasis on the search for petroleum. Well, lately it has been reported that in nearby Venezuela one of the conditions for granting new oil concessions is that part of the exploration work must be done in the wild though receding frontier region still inhabited by this wild tribe. Governments are determined to open up the section which the Motilóns have held for 400 years.

Incidentally, the oil worker in this instance, a Señor Gutierrez, was not killed. The arrow struck the ladder first, and he got off with a chest wound.

TRADE SECRET ON JOB PLACEMENT. Writing in McGraw-Hill's "Technical Education News," J. B. Hershman, President of Valparaiso Technical Institute, points out that alumni come in very handy in helping the school place graduates in jobs. Not the first job after graduation—because of the current shortage of trained personnel, that's no problem. But in cases where a graduate wants to locate in a specific part of the country or obtain a particular type of job, the *old* grad known as an alumnus has been found to be quite useful. Continued contact with its graduates helps keep the school informed as to what jobs are available—and in turn the Institute can also tell its far-flung sons about a new job opening when an employer contacts the school for an experienced technician.

So let's watch those funny cracks about "old grads" in general, whatever their propensity for starting sentences, the very day after they get their diploma, with the words "Now when *I* was going to Winsocki. . . " It's possible the old

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CAN I GET THE JOB? That's the title of a booklet issued by General Motors for the benefit of young people soon planning to go to work. But whether you are through with high school this June or still have time ahead, you'll find it an excellent primer-manual on seeking your first job. It contains master forms you can follow, such as a detailed "qualification sheet" for presenting along with your application. (Headings include data on your education, hobbies, summer work experience, etc.) There is practical advice on where to look for a job, tips on getting your interview, what employment managers consider important (and *don't* think it's always previous experience or specialized skills).

First, however, the booklet sits down with you and talks about how to get started—how to choose the right kind of job to seek, the kind best suited to your ability and inclinations.

It is free. To obtain a copy, just write to Department of Public Relations, General Motors, Detroit 2, Mich.

CORRECTION. Due to the wording of an item in the March J-C-S Guide, a wrong impression may have been given as to sponsor in the section headed "Scholarships in Naval Architecture and Marine Engineering." The two NAEBM scholarships for correspondence courses at Westlawn School of Yacht Design, although administered through the Society of Small Craft Designers, require that applicants be employed by member firms of National Association of Engine and Boat Manufacturers, rather than member firms of the Society. Sorry!

YES, EDUCATION PAYS! Sure, we've already given you some figures on the subject, but the statisticians keep coming up with more. For instance, a government survey showed that in the case of all men in the country 25 years and older, those with college or high school education had 73% of the $5,000 to $6,000 incomes, and 82% of the $10,000 or more incomes. On the other hand, those with only an eighth grade education or less had 77% of the incomes below $500. . . . A former dean of Boston University found that during the course of their lives college grads made $72,000 more than high school graduates. . . . James P. Mitchell, U.S. Secretary of Labor, points out that by the time you are 45 a high school diploma will mean almost $1000 more a year to you than if you only finished the eighth grade.

So whether it's high school or college, the guy with study and training behind him simply makes more money. One moment, please: somebody in the back row just asked—yeah, but what about those poor dopes who quit school in the seventh grade and went on to become presidents of corporations? Answer: Name one who didn't continue his education through some form of study—self-administered beside an oil lamp, night school or whatnot. The late Walter P. Chrysler had to leave school at an early age; he continued with correspondence courses as part of a program of study and initiative that led to the presidency of a fair-sized auto manufacturing firm: Chrysler Corp.

KEEP UP WITH YOUR FUTURE!
Read J-C-S Guide Every Month

Under Control

(*Continued from page 67*)

his version has a 1U5 AF amplifier and a 3E5 (with only half the filament connected) relay tube. Since this is a nice easy way to get two controls, we expect to have more data on it later.

Couple of neat tricks suggested by Paul Johnson (1500 Arthur Ave., Des Moines 16, Iowa). He has had difficulty getting 7-pin miniature plugs and solved this by soldering short lengths of wire in each prong of a 7-pin socket; this unit then became plug and is used with another socket of same type. (Most R/C suppliers now carry low cost 7-pin plugs, so experimenters may not have to go to this extra trouble). Paul says he saw a neat idea at a contest; one flyer had a reed setup in his plane, and had no centering contacts for the *down* position of the elevator servo unit, but such contacts were fitted for the up position. The downside was thus usable for elevator trim; if the plane got into trouble, or flyer wanted to return to an exact neutral position, he just sent up elevator signal and released quickly.

More and more reports come in of successful copies of the Good twin-3V4 proportional pulser. However, Walt Good sends a slight warning; he has seen such pulsers connected to transmitters that have poorly filtered power supplies, and points out that this can only result in erratic operation. Vibrator supplies would be worst in this respect, and dynamotor supplies might also give trou-

(*Continued on page 85*)

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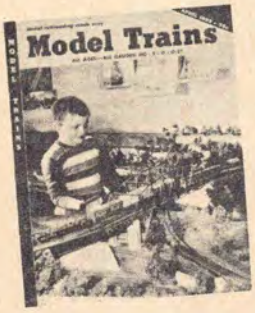
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Model Boating

(*Continued from page* 15)

data on this race may be had from Piasa Boating Assoc. (112 E. Broadway, Alton, Ill.).

Record Certification and other official functions in the full-size outboard field are handled by the National Outboard Association, which also certifies power output of most of the commercial outboard engines. Monthly bulletin is published by the NOA, called the "Rooster Tail," carries notes on outboard races and results, news of new equipment and personalities in the field. Copies may be had from NOA at 707 Market St., Knoxville, Tenn.

The last S.C.M.P.B.A. meeting showed a good turnout, and happily, a Treasurer's report showed a comfortable balance in the till. Results of participation in the joint Sail-Power exhibition at Alondra Park were discussed, and all hands agreed the event was a real success. The group decided to participate actively in the California Hobby Show to be held in L.A. Harry Royse reported on the possibility of setting up model boating facilities at the proposed Whittier Narrows Flood Control Area, and the S.C.M.P.B.A. will request 600 yards of shoreline for tether, R/C and free-running model boat work.

Incidentally, this Association is trying an idea that might be helpful to others; they are sending a supply of information slips describing the work of the group together with a covering letter, to all hobby dealers in the Southern California area. Idea is that dealers will put the slips in all boat kits sold. It is hoped that kit builders will become acquainted with other model boatmen through membership in the Association, leading to probable sale of more kits—thus Club, dealers and hobbyists all benefit.

Inland Model Boat Club has been formed at Riverside, Calif. to take in members from Riverside, Calif. and surrounding communities. All sorts of model boats will be represented according to D. Paschall (Paschall's Hobby Shoppe, 3609 Eighth St., Riverside), Sec.-Treas. of the new club, who sent us the info. At first meeting these other officers were elected: Pres. and Program Chairman—Bill Wells; V.P.—Dick Crichton. Dues are only $2 per year and there are two types of membership—Juniors up to age 15, and Seniors, 16 and over. While most of the present members are R/C boat fans, they hope to go in for all sorts of model boat development. Meetings will be held second Tuesday of each month, and members gather every Sunday morning at Fairmount Park in Riverside, to run their boats.

An All-R/C Contest for Speed, Precision and Beauty was run jointly by above group and the Corona Model Boat Club on April 10. Sad to say, news of this event reached us too late to publicize before the races, but we'll have the results in another issue. The R/C course was a simplified version of the one we showed in ATH in a past issue; it calls for only eight buoys, set out so that the Precision boys have quite a few turns steering around and between them. The Speed course is around the outside of the buoys, and both events start and finish at the same point. It is felt that the Precision course is still tough enough to interest the experts, while allowing

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the beginners a reasonable chance to come out on top, too.

Carl Dunlavy (Carl's Hobby Shop, 610 E. Grand Blvd., Corona) who sent us this dope, will probably be glad to forward info on the simplified course and rules to other clubs which might be interested in trying an event of this sort.

Seems we used the term "sheets" incorrectly in a past issue. We are called down by Kenneth Morey (471 West Bluff St., Marseilles, Ill.) who sez "sheets" are "the ropes which regulate the angle at which the sails are set." He quotes Webster's Dictionary on this (yep, we looked it up and that's what Webster *does* say). Having spent many summers at an East Coast fishing village, we still think "sheets" is the common term applied to *sails;* what do other qualified salts say on this? (Did we use the term "salts" correctly here, Ken?!).

A comprehensive R/C control system has been worked out by H. N. Nerwin (7552 W. Clarence Ave., Chicago 31, Ill.) who sent a snap of his Sterling "Catalina" making a neat S-turn in the water. Henry says controls consist of a single hard-tube receiver, and a reworked E.D. escapement, which provides left and right rudder, forward, reverse and stop control of the 14 V. Pittman train motor. Motor runs on 9 V. and turns a 2" dia. prop, and with fresh batteries, speed is about 4 mph. Running time is about 1½ hours on a set of batts.

Commercial Offerings. Lots of interesting items here this month, many of them having been introduced at the Model Industry Show at Grand Rapids in February. Digging right into them—big news comes from Allyn Sales Co. and K & B Mfg. Co.; these two well-known concerns have combined and will henceforth operate under the name of K & B Allyn Co., Inc. (6425 McKinley Ave., Los Angeles 1, Calif.). They announced a bewildering array of new engines at the Show, most of them of interest mainly to the boat boys. There are now several engines with .060 displacement, including a single-cylinder inboard job (the Mar Fury .060 Marine) of the normal style; an outboard and a vertical inboard are also available in the same displacement.

Then there are outboard and vertical inboard twin-cylinder engines in both .12 and .15 cu. in. displacement, and also a Mar Fury Marine Twin of .12 size. All the twins are of the in-line style with alternate firing, which should assure very smooth running—of special interest to the R/C fraternity. There are also plastic Allyn-Craft outboard boats made for either inboard or outboard installation, and sold in both kit and ready-to-run form.

Cheminol Corp. (Rivera, Calif.) announced new deluxe Ohlsson & Rice .049 engine called the "Midjet." Version we've seen was for model planes, but we understand there'll be a marine job too. Engine has rear downdraft intake and four feather valves. Suited to either radial or beam mounting. Plane engine comes with prop spinner-nut and large tank which also serves as radial mount. Marine engine will include true-pitch metal prop, and all necessary boat accessories.

35" Veco tug boat kit prefabbed mostly from styrene plastic is new offering of Henry Engineering Co. (Burbank, Calif.). Intended especially for electrically-propelled R/C use, kit includes prop, stuffing box, and everything you need to make a working boat, except the electrical equipment.

Several unusual boat kits to be had from Berkeley Models (West Hempstead, N. Y.). "Sailabout" 20" kit includes carved hull, metal keel and plastic sails, and features a mechanical automatic pilot. A bigger sail boat is the "Hinckley Auxiliary," which has a 36" moulded hull and mahogany superstructure. Can be operated with or without R/C, and can be fitted with electric power, so you can still have some fun on dead calm days. A scale model of

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Wing Area .....435 sq. in.
Overall Length .....30 in.
Weight .....1½ lbs.
Engine .....19 to .36 cu. in. disp.

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the hot Chris-Craft "Cobra" is in the Berkeley line, modeled to scale of 1½" to the foot; boat comes out to 31½" length, can be fitted with engines from .09 to .35, and Berkeley suggest either tether running or R/C for this one. Model of Chris-Craft "Corsair" is exact copy of the big 45-footer, and in 1" scale is just 45" long; this super deluxe floating palace will have a fully-formed hull, probably won't be on sale till mid-summer.

Fully-carved balsa hull is featured in "Surf-Skimmer," by Enterprise Model Aircraft & Supply Co., Inc. (Mineola, N. Y.). Kit comes complete with marine version of Space Bug Jr. engine, and of course, all necessary hardware. This boat is of the runabout style with engine mounted in center cockpit.

Authentic marine finishes for all model boats are available from Stewart/Lundahl Co. (North Hollywood, Calif.) in many colors, plus mahogany, black and white. These are high gloss fuel-resistant finishes, with a drying time of about ½ hour.

Product of joint development by Wen-Mac Corp. and Atwood Motors is the 18" long "Corvette" which comes completely assembled and ready to run. Will be equipped with outboard engine, and can be run either free or on tether. The boat is styled after the racing outboards, has small cockpit at the stern, is 7" wide and can travel safely on even very rough waters. Wen-Mac will announce other marine craft in the near future.

Readers have asked us where they can purchase plans, kits or finished model racing yachts, such as those which compete in the Model Yacht Racing Association events. As far as we know there are no kits available at present, but plans of successful yachts of this sort may be had from A. J. Fisher (1002 Etowah Ave., Royal Oak, Mich.). A 36" size is recommended for beginners in this activity, and 200 or 300 of them are built each year in Detroit schools alone, as a Manual Training project. Concern also has plans for several successful racers of the "Marblehead" class, which are about 50" in length, and can supply hardware and other parts for such craft.

They also have a very large line of fitting sets and plans for all sorts of boats, both sail and power. They issue comprehensive catalog for 35c.

Other concerns that publish large catalogs of boats, kits, plans and fittings are Polk's Model Craft Hobbies (314 5th Ave., New York 1, N. Y.) and James Bliss & Co., Inc. (342 Atlantic Ave., Boston 10, Mass.). Write for info on catalog prices.

Finished model racing yachts can be had from A. R. Lassel (831 Lakme Ave., Wilmington, Calif.) and we understand the price ready to sail is about $50. However, Mr. Lassel—who is one of the top model sail racing men in the country—will *only* sell these boats to members of model yacht clubs and to those who will actively engage in competition with his products.

Tiny lamps for model boat use may be had from Utili-tronics (Box 2108, Philadelphia 3, Pa.). They come in either 6 or 12 V. ratings, and can be had in clear, red, blue, green or yellow. Bulbs are about ⅛" dia. x 3/16" long and have 6" stranded leads. The 6 V. lamps draw about 80 ma. on full voltage, will give quite a good light on 4 or 4½ V. Price is 30c each or 2 for 50c.

Doings of the Speed Boat set come to us through Bob Graham (127 Cottage St., Jersey City 6, N. J.), who reports first on meeting of the New York Model Knights, held at home of Henry Parohl in Flushing, N. Y. Henry showed a new Class D boat, also a new Class B boat and engine; both hulls were of beautiful polished mahogany. New Class E boat (McCoy powered) was shown by Fred Manderville, while Bob himself had along an almost-completed hull. New member Joe Horvath, who came to this country from France a couple of years ago, had a homemade 15 c.c. engine with him. Bob has heard from an ATH reader in Australia, who would like to correspond with American model power boat builders; he is Bob Anderson (61 Swinburne St., Lutwyche N3, Brisbane, Queensland, Australia) and builds both speed and R/C boats.

Check Hobby Calendar for coming model speed boat races; races we hear about will no longer be listed in this Column, but will go in the Calendar to save space.

Bob Graham points out an error on p. 75, April 1955 issue of ATH; as he states, the 15 c.c. engines are in the C Class for boats. This class is for engines over 10 c.c. but not over 15 c.c., and most C engines are of about 14½ c.c. The B Class calls for engines over 15 c.c. but not over 30 c.c., and here most of them are around 29½ c.c.

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El Promedio

(*Continued from page* 37)

center line of the fuselage just in front of the tail. We realize that few model builders have the facilities to measure angles, so therefore everything is dimensioned.

"This wing and tail construction is the brain-child of Dennis Davis. He used it more than three years ago.

"As for the test flying—this should be easy providing that warps are not built in or pulled in during covering. Check the wing across a drawer as per the '54 AT Annual, visual-check the stab. (Warps, small ones, that is, can be removed by holding the structure over heat and twisting till the warp is gone. Hold in this position until wrinkles disappear, then move to cool air to dissipate the heat.) Test-glide for a flat, smooth glide; any tendency to circle should be checked for cause, and eliminated if other than tab. We prefer the right power-left glide pattern. The left glide can be obtained best by a combination of left tab and lowering the right side of the stab slightly.

"The final check we always make for glide amazes most people, but we run and throw the model in a slight left bank, nose slightly up. If the glide is correct, the model will climb to about 20 ft., level out and glide to the left. If it stalls, catch it (it takes a fast man). This type of test is much the same as the top indoor hand-launch experts use, but care must be taken to insure a good launch. This is a positive check. Above all do not go lower than ¼" incidence in the wing. If stall persists, tighten up the tab or tilt a little more.

"For initial power tests a piece of balsa is plugged down one side of the intake, this half being closed entirely. An 8/3 prop is also a good deal, since it does not give much thrust. A run of 8-10 seconds very rich is best. Test the engine with the nose up to make sure it doesn't lean out. The thrust is adjusted with washers to accomplish a climb of 1½ to 2 turns in 15 seconds. Recovery on top then will be very much like a hand-launch glider, rolling to the left in a smooth, no-loss pull-out. Do not allow the nose to get more than 60 deg. (approx.) up, keep it down with down thrust and the flight pattern will be plenty fast.

"On this 15-second run, with a little practice you will be able to top the 3-minute maximum very consistently. Fly the blazes out of the ship till you are certain that you know it thoroughly and your results will be very good. We have logged more than 75 flights and felt that we know what it will do every flight.

"*El Promedio* means the average or middle in Spanish."

Pseudo-Sub

(*Continued from page* 25)

Normal finish color is Navy gray; you can use model dope or enamel (easier to use but it can't be rubbed up to as good a finish). Just be sure that your finish covering will go over the type of balsa sealer used.

Many cast model ship parts were used, including anchor, cleats, searchlight, etc. HO train handwheels were employed on the gun, while deck hatches are large washers. Nylon thread forms the rigging, though 1/32" rubber is better—it will never sag.

Though the plans show the large Pittman motor, the smaller one (No. 9001) was used on the first test sub, and drove it in fine style. The motor was fitted with 2-1 reduction gearing, and supplied by three 4½ V. radio C batteries, connected in parallel. This powerplant gave a nice scale speed; the sub is easy to drive as there is so little of it under water. The ballast, bolted in place, should be such that the waterline is just about even with the row of brass eyelets. Then you will still have a half inch of the upper edge of the power hull above water level. Waves that may hit the outside of the craft do not slop over into the power hull, so there is no particular need to seal the joint between the latter and the cutout under the sub.

Of course, if you expect to operate your sub much, a small storage battery is the ideal powerplant. There is plenty of space for one in the power hull, and ample buoyance to carry it.

Well, there's your simplified sub—it looks most realistic, and is lots easier to make than the conventional style. She is not a scale copy of any large sub—the lines and proportions were chosen for ease of reproduction, while retaining realistic appearance. And the unusual method of construction makes her easy to drive and easy to steer—just perfect for R/C operation!

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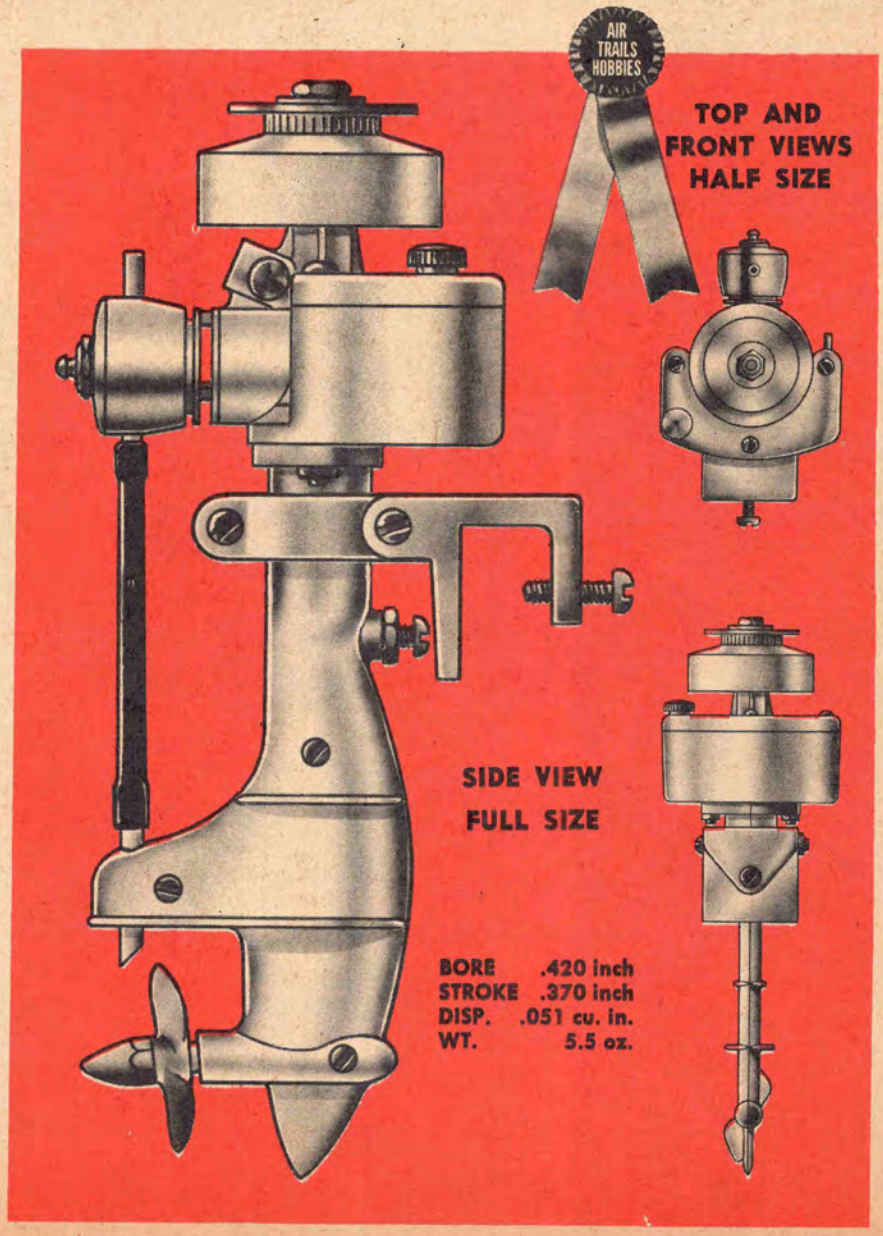
Atwood's Water Cooled Outboard

Here's one of the powerplants that did much to revitalize model boat activity

■ This Atwood water-cooled outboard with its unique water pick-up system is an exceptionally rugged and powerful marine engine considering it displaces only .051 cu. in. These are sold as complete ready-to-run units. The only additional equipment necessary is fuel, a booster battery, hook-up leads and a starting cord.

Mounting on a model is accomplished by a single machine screw which passes through a really sturdy die-cast aluminum transom clamp. By loosening the clamp lock screw the thrust line of the propeller may be easily altered. By this simple means, the correct planing angle of any model is quickly achieved. To maintain this adjustment, an additional screw, threaded to the main engine strut casting, may be locked in place against the transom clamp. A die-cast aluminum clamp ring is used to rotate the engine for steering purposes. A thin spring steel band is used between the clamp ring and the strut to insure smooth rotation.

You find that the power end of this outboard is basically the same as the Atwood inboard. The big difference of course is in transmitting the engine power to usable thrust. In the outboard this is accomplished in a very simple yet highly efficient way. By utilizing a coiled flexible spring shaft to drive the propeller, loss of power which might be caused by insufficient lubrication or too tightly meshing gears is avoided. The rear crankcase cover, die cast of aluminum, also forms a sizable fuel tank. It is through



this casting, which also acts as the top bearing, that a hardened steel rotary disc and shaft passes. A slot in the disc, is thus driven by a slightly longer crankpin than is used on the inboard engine.

The flexible coil spring is secured to the steel shaft and fits into an oversized groove cast into the two aluminum halves which bolt together to form the lower strut section. A bronze bushing at the propeller end of the shaft insures long and smooth operation at this vital point.

An efficient cast brass two-bladed 1" diameter propeller threads onto a steel shaft and is locked in place by a spinner type brass nut.

This water cooled engine tested ran beautifully and quite cool due to the novel water pick-up system employed. A short length of brass tubing is clamped between the strut casting halves slightly behind and above the propeller. This is connected by a piece of Neoprene tubing to the inlet tube of the water jacket that surrounds the cylinder. In operation, the propeller and the forward motion of the boat forces water up this tubing to the water jacket. Water flows around the jacket, cooling the cylinder, and then out the outlet tube located opposite (180 deg.) the inlet tube.

We found the propeller forces sufficient water to the water jacket to keep the engine cool even when the model is at rest. Therefore when breaking in your engine or just familiarizing yourself with the starting and running procedures it is recommended that such tryouts be done with the propeller submerged in water. If a lake isn't located in your backyard or if your model just isn't completed, a large bucket of water will do very nicely. Remember the manufacturer recommends that the water-cooled engine should not be operated for more than 30 seconds without water cooling.

Starting our test engine was really a pleasant experience. We used the following procedure and got a one-pull start every time. When you have found the correct needle valve setting for any particular speed you desire, you simply leave the needle valve alone. Now fill the tank and wind the starting cord around the flywheel. Make certain that you wind the cord in the same direction as the arrow on the flywheel indicates. Prime the engine through the exhaust ports. Hook up the battery leads. Place your finger over the intake tube and just draw enough fuel from the tank to fill the fuel line. Then one pull on the starting cord should do it.

Running tests showed the fuel tank capacity allows two to three-minute runs depending on needle valve settings. This is sufficient for tether runs or for use in small lakes. However, for extended running time we suggest hooking up a pressure tank, such as Jim Walker's, directly to the needle valve body. This tank should give runs of almost 15-minutes' duration. Although rather large for a small model, the tank can easily be kept out of sight below decks. For radio control work—especially when the model is operating in choppy waters—use of this type tank is practically a "must." Don't let the small displacement of the Atwood outboard fool you. It really puts out plenty of power and is quite adequate for powering most R/C models. A 12-pound model of clean hull design powered by our test engine was pushed along at a nice walking pace.

In the past we have recommended the use of a safety cord as an additional precaution against outboards becoming loose and winding up at the bottom of

(Continued on page 80)

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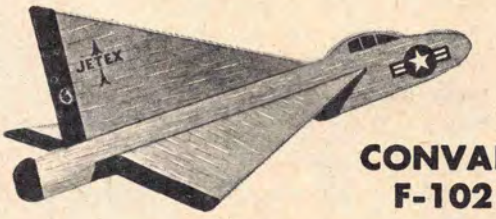
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Kit with 26F Relay, XFG1 tube, meter jack, toggle switch, 25kr pot, and 3 prong plug.
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DELUXE POCKET RADIO

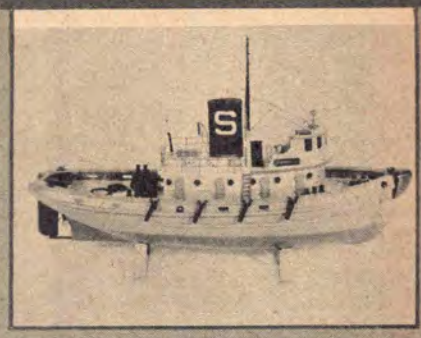


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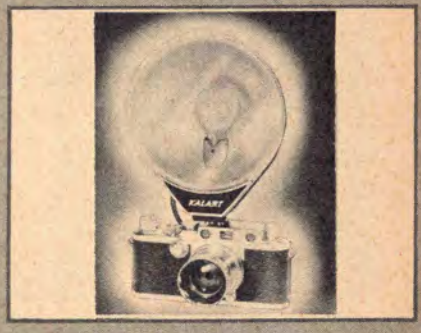
Satisfied users report up to 1500 mile range. **ELECTRON TUBE MODEL** uses standard radio parts built to last. No hearing aid parts used. You can assemble this neatly engineered kit in one hour with simple directions. Batteries and parts fit in case. Tube included. **FULLY GUARANTEED.** Eveready Batteries $1.15 per set. Radio headphone $1.69. High imp. reg. $10 hearing aid earset only $4.95, or use own earphone. MODEL 3V4 **FACTORY-WIRED (SET ONLY) AVAILABLE AT $8.95.** If C.O.D. **PLEASE MAIL $1** deposit.

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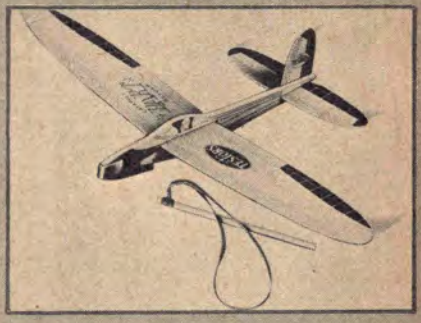
HOBBIES'



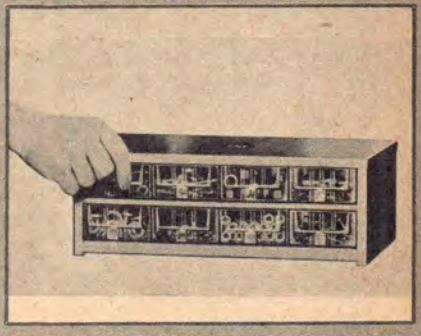
All plastic assembly set for sea-going diesel tug by Pyro Plastics Corp. sells for $3.49. Overall length is 14 inches; height is 7½ in. Scaled ⅛" to the foot. This is copy of the "Despatch No. 9" built in Florida in 1945 and now operating in San Francisco bay areas for Standard Oil Co. of Calif. Illustrated assembly instructions comprise 77 steps. Hull sprayed green from waterline down.



Popular modern cameras with an accessory mounting shoe on top, such as Zeiss, Voigtlander, Ansco, Retina and Leica, can now be fitted with a new Kalart BC-400 Flash Unit. It includes a mechanical mount that rigidly attaches the BC-400 to the top of the camera and a connecting cord to fit the flash terminal. Model 442 with mount and cord, $14.95 less battery.



One of two new ready-to-fly airplanes added to the plane kit line of the Testor Chemical Company (Rockford, Ill.) is Testor's 29c Dart Catapult Gliders, according to an announcement by Frank J. Brophy, sales manager. The Dart is all-balsa construction, comes complete with strong rubber sling-shot launching device, has wingspan of 18 in. and a length of 12 in. It assembles in 30 sec.

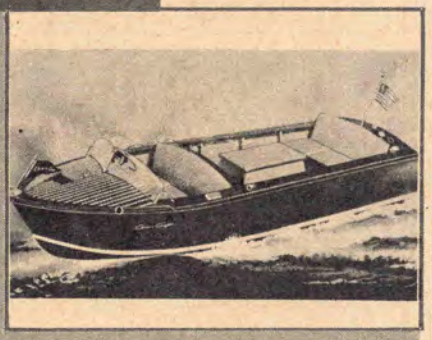


Steel cabinet with eight clear "See-Thru" drawers is ideal for filing small parts in the workshop or hobby room. Transparent plastic drawers enable user to spot drawer in which items are stored. Adjustable crosswise and lengthwise dividers make it possible to set up various sized compartments. Drawers are 5⅞" long x 2¾" wide x 1 7/16" deep. Cabinet is 4" x 12½" x 6".

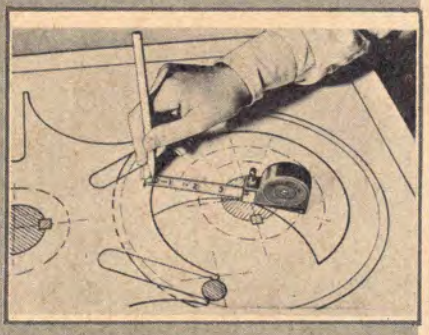


Instead of do-it-yourself, Sigwalt Mfg. Co. says you should print-it-yourself on one of their miniature presses—business cards, letterheads, menus, labels, price tags, envelopes, statements, tickets and countless other items. Available in a variety of sizes in single and double roller models priced from $19.95 to $155.95 complete with accessory equipment. Print 2¼" x 4" to 6" x 9".

SHOWCASE



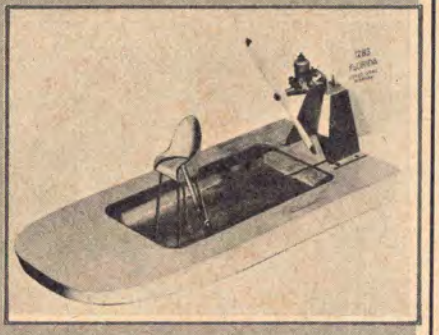
Ideal Models introduces their new Chris-Craft "Sportsman" with the exclusive "welded-wood" hull. Many hours of tedious work are saved the hobbyist by the finished hull. Among the kit's features are die-cut seat covers, plywood and mahogany parts. Metal fittings include a complete propeller and rudder assembly unit. Craft has a 20" hull, 7½" beam. Can take R/C. $6.95.



You can make big circles and large-radius arcs up to 12 feet in diameter with this unique beam compass rule imported from Sweden. Lock tape to desired radius, press in center point, and draw with pen or pencil, or cut leather, fabrics or thin metal with a sharp knife point. Steel tape in calibrated 32'nds. $1.98 postpaid by The Walpole Company. Center is thumbtack.



Swif, a solder with flux in paste form is 50/50 tin-lead solder designed for craftsman and home hobbyist. Solder is applied in paste form and the adjacent surfaces are heated. For small jobs such as soldering wires the heat from an ordinary match or cigarette lighter directly on solder is sufficient to do perfect job. Swif is packaged in unbreakable plastic tubes. Sells for 59c.



New Florida Everglades Buggy by Cavacraft contains completely shaped balsa hull with a clear grain poplar plywood deck already assembled and pre-glued. Formed alumnium motor mount and all hardware included. Finished air rudder has easy hinging installation. Decals, illustrated instructions. Priced at $3.95. Takes any of the .049 engines. Length is 16", beam 8"; hull depth, 1⅞".



Preformed aluminum construction kit, the Schweizer "Captain's Case" is designed for school shop classes. This is another in the expanding line of do-it-yourself projects developed for junior high and high school classes by the Schweizer Aircraft Corp. The kit makes into an attractive, lightweight and versatile traveling accessory useful as an overnight case, picnic container, etc.

NINE NEW OUTBOARDS



Chris-Craft's 18' Outboard



Chris-Craft's 17' Outboard

Nine new outboard construction kits now available at all dealers. All an inch to the foot scale or larger. Actual large boat construction, framed hulls planked. Each kit complete with cement, decals, metal fittings, blade, sandpaper etc. Chris-Craft's 21" Monterey Cabin Express Cruiser at $3.95. Chris-Craft's 17' Speed Boat at $3.95, Chris-Craft's 18 foot Express, 18" long at $3.95. Chris-Craft's 14' Hornet runabout, 17½" model at $3.95. The new 16" "APACHE" conventional step hydroplane at $2.95. Chris-Craft's 28' Cruiser, 25' Express, 21' Sportsman, 21' Express now show outboard motor installation as well as inboard. WRITE for literature on 18 boat construction kits —$2.95 to $9.75, sixteen-inch to thirty-five inch models.

DUMAS PRODUCTS

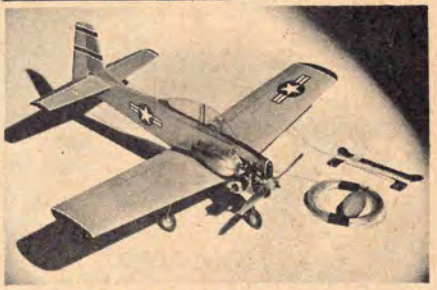
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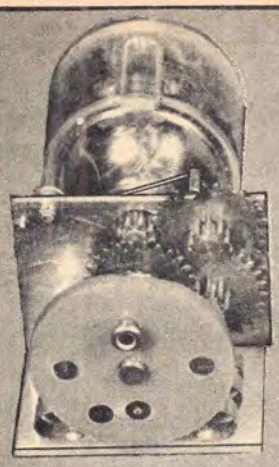
Jim Walker **"FIREBEE"**

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provides a self-learning plane you can take off and land at will—a plane you can fly slowly, quietly, without dizziness. You can shoot landings with the "Firebee," hover in mid-air, land and taxi in, refuel with the engine running, take off again! COMPLETE KIT INCLUDES fuel tank with "anti-stall" reservoir and filter, smooth-finished parts, U-Control handle, flying lines, prop, canopy, landing gear, wheels, hardware, decals, flying course. Jim Walker "Firecracker" Engine with New "Power & Silencer Control." **$14.95** at your dealers

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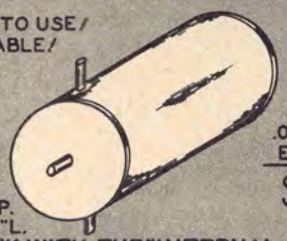
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FEEDS FUEL FROM ANY POSITION

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FULL SIZE PLANS



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"Pseudo-Sub" by Cap'n Frank Van Buren. At long last — a working sub model that's a cinch to build. Easily made waterline version has amazing power pod for propulsion, uses electric or glow engine power. Sixty inches long, 18½" overall height, 6 inch beam. Designed to take radio control.

"Hydro-Cat" by Bill Baughman is a semi-scale speed boat takes any of the glow plug outboards and mounts 'em as an inboard! Can also use new Allyn vertical inboard. Overall length is 15½", height is 5½", beam is 6½".

"Roll-O" is Vincent Bonneme's remarkable .14 to .19 radio control contest winner that makes a perfect training plane with reduced power. Span is 5 feet, length his 39".

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NEW YORK 59, N. Y.

Atwood's Outboard

(*Continued from page 77*)

the lake. With the Atwood, however, a half-inch thick hardwood transom block may be used and drilled slightly smaller than the transom clamp screw. In this way the screw taps its way into the wooden block and holds the engine securely.

The transom clamp as stated previously is adjustable to alter the thrust line. However, when mounted on a perfectly vertical transom the thrust line can only be altered from a zero setting to negative settings. To achieve positive angle settings, necessary on some models, the transom should be slanted a few degrees when the model is under construction. If this construction change is not possible, the bolt that threads into the strut casting should be removed and shortened. The casting can now be filed down a sufficient amount until the desired amount of positive thrust angle is achieved, with the bolt replaced. Make certain that when the bolt is replaced it does not bind up against the flexible shaft.

Out-of-water speed of our test engine was slightly over 16,000 rpm. In water the speed drops to about half. However, this means very little and should not be considered the true engine speed in water. With the model underway, this water speed increases considerably as soon as the model is released.

Additional thrust may be obtained by sharpening up the edges of the propeller blades with a fine jeweler's file and then smoothing and polishing them with very fine emery cloth. Of course this is not necessary unless you are trying for that little bit of extra speed that may be necessary to produce better planing characteristics in your model. The slight effort required is well worth the time expended.

Hobby Model World

(*Continued from page 51*)

gonna let go any minute now. At least, that's what Bill Blake, 4131 Adams St., Sioux City, Iowa, would have you believe. He wants to get rid of some of his model plane collection and materials that have become too big to keep in one garage. Hez got many of the older ignition engines, including those elusive 60's, some brand new and others with very little time on them. He also has some of the older kits like Capitol Beechcraft, PDQ Corsair and others of that period. Also Air Trails and other mags from 1939 to 1955. He can furnish anyone listed with a detailed list—he promises.

—THE DOPESTER

SOUTHERN SCENE

Southeastern Championships. This is the time "Down South" all modelers have been looking forward to. The Greater Southeastern Model Plane Meet will be held at the U.S. Naval Air Station in Atlanta—the same site used last year for this event—confirmed dates being June 16, 17, 18, 19. Yep, four days of strictly a modelers' meet. As was said last month, there will be no restrictions as to when any one event may be flown, with the exception of person-to-person competitive events such as combat and team racing. Anyone may fly any number of all of his flights on any one or all of the four days. This is more or less an experiment for a meet of this size. We are hoping that everyone will see the need of getting in their flights as soon as possible.

We are all expecting to see all the old faces around this year and hoping very much to meet a lot of new ones. Why not make your plans to attend? Remember, June 16, 17, 18, 19, U.S. Naval Air Station, Atlanta, Ga.

New Atlanta Club. In November of '54, a new model club was organized in the Atlanta area: the West End Eight-Ballers.

Joe Wilson, an ex-Navy man, returned from the service to open a new hobby shop and start this club. Some of you fellows out in Bremerton, Wash. may remember Joe. He was a member of the Bremerton Prop Spinners from '50 to '53 while in the Navy.

This new club consists of approximately 23 members ranging from 4 to 40 years of age. Buddy Medlock, a fine young speed flyer, is president of the club. Johnny Dyer, a very good stunt flyer, is vice-president. A regular meeting is held once a week. Each week, a $1 door prize is given away. One meeting a month is devoted to teaching the fundamentals of building models. Along with building instruction, they have also set a system for training the inexperienced fellows how to fly. Five teams of two instructors each have several students assigned to them. At each fly-

(*Continued on page 87*)

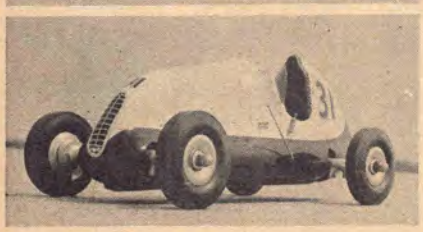
"My Favorite Model"



Reclaimed Midget Car, says Roscoe D. Judd of Indianapolis, Ind.

"This little speedster of mine has a rather unusual background," reports Roscoe Judd. "It was originally a front-drive Dooling, and I found it in a dump yard while out crow hunting. It was in a pitiful state, the wheels missing, the body badly cracked, but it presented an interesting challenge and I took it home with me. The cracks in the body were aluminum welded, filled, sanded and sprayed with automobile filler. A set of new bevel gears and ball bearings put the front drive back into operating condition. Front and rear axle were then painted silver and varnished with clear lacquer. From sheet aluminum I fashioned the hood and full length underpan. The steering wheel was made of sheet brass and rod, wound with cord. Brake lever and pressure pump assembled from drill rod, solder and brass sheet added a touch of authenticity. Many of these parts were then chromium-plated. Final details included such items as safety belt made from aircraft rib reinforcing tape, Lucite windshields and 16 coats of white and black paint as well as decals, to make this one of the most realistic midget racer models. Powered with a McCoy .60 ignition engine, it can reach a speed of 92 mph."





WIN $25.00 WITH YOUR FAVORITE MODEL

Send photo(s) of yourself & model plus details to "My Favorite Model" contest c/o Air Trails Hobbies For Young Men.

FOR EASTERN PIKES—

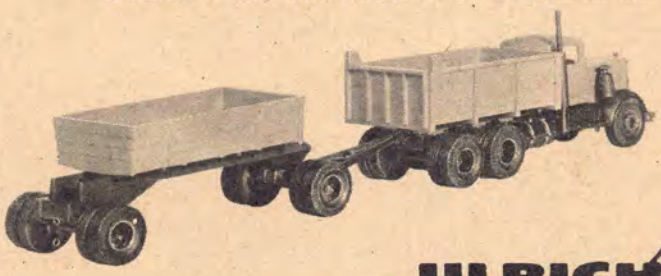
ULRICH'S NEW HO GAUGE

DENVER-CHICAGO TRACTOR AND TRAILER



Latest addition to the amazingly popular line of Ulrich HO trucks is the Denver-Chicago van with a Kenworth tractor. Prepainted in green with yellow lettering, this model looks *good* on any HO layout. Careful engineering provides such features as working wheel bogies and complete under-carriage detailing. This all-metal beauty is easy to assemble and also available with PIE and Garrett names. Only $2.50 at your dealers.

ALSO NEW—Kenworth dump truck and transfer trailer. **$2.75**



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Complete kit with 6 diodes, relays, tubes (non-obsolete types) 37.95
TUBE KIT (5) DIODES (6) 15.45
SPECIAL NEOMATIC or PRICE relays..... 5.95

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With 2 **NEW SIGMA 4F** relays 23.95
ESSCO WAG single audio tone receiver, a set which is finding great favor with the boys who wish to try the newer methods in R/C. **ESSCO WAG H.Q.** parts kit includes tubes & punched alum chassis, only... 8.95
Your choice of relays, see listing.

SPECIAL • PETERSEN Z9A $3.95

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For use with the **NEW TWO CHANNEL** receiver & most other audio sets. Basically this is the **IMPROVED ESSCO LORENZ MOPA XMTMR** with the **NEW ESSCO STABLE MULTI-TONE MODULATOR.** Unique—Reliable single circuitry & assembly makes a powerful transmitter for use with single or multi-tone audio & regular CW signals. Complete ESSCO H.Q. parts pkg. with easy-to-follow instructions dwys. Includes all materials required (no extras except batteries).....$49.95
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ESSCO MINI VIBRATOR PACK, 2 volts input, 180V 45 ma. output, completely filtered for audio tone equipment, only 3x4x5 in. H., will save you $ on dry battery replacements. Uses all new parts mfrd. 1955. This is NOT WORLD WAR II surplus overrated junk. Complete parts kit includes drilled & assembled chassis....$ 8.95
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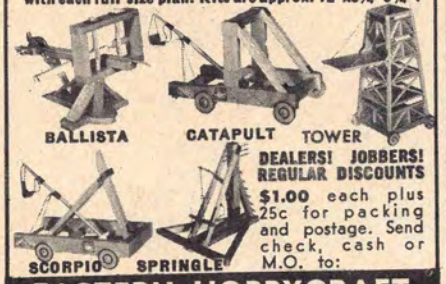
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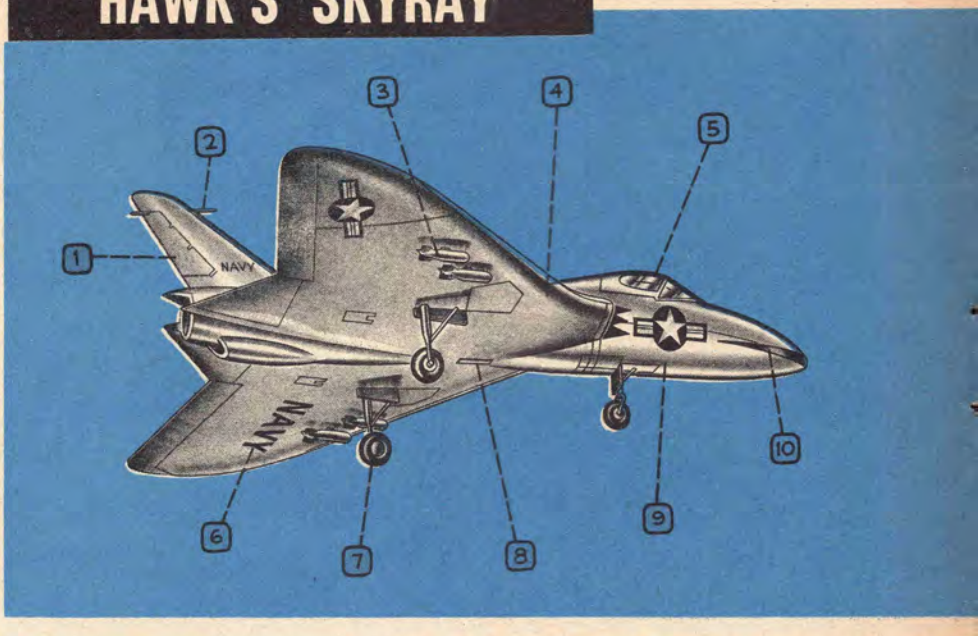
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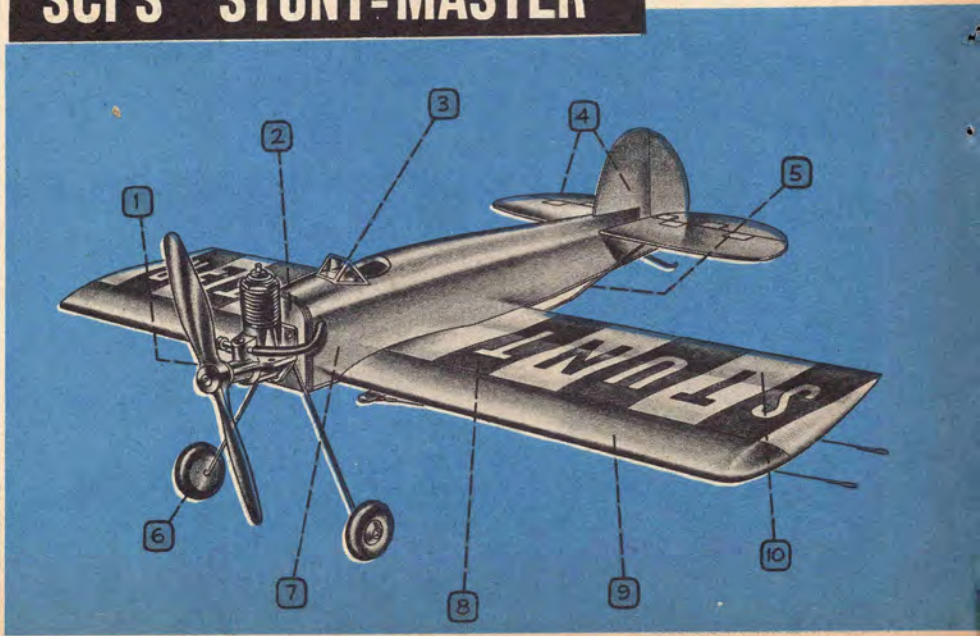
TOOL MART— Dept. DW-33, Box 881, St. Louis, Mo.

"HAWK'S SKYRAY"



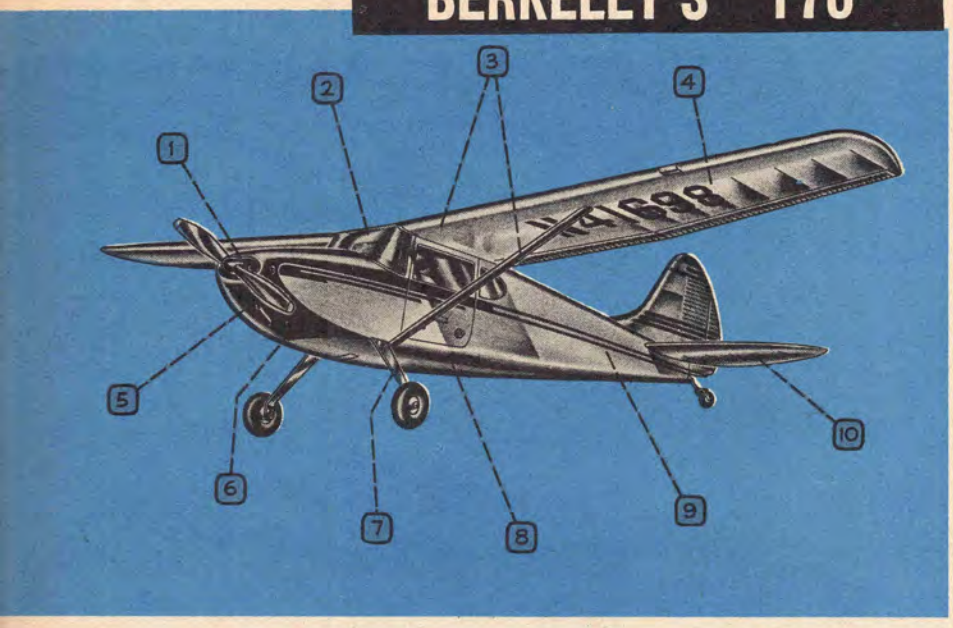
■ Among the new offerings from Hawk Model Company in Chicago is this all-plastic scale model of the Douglas F4D Skyray. Among its important features we find: 1) plastic fin assembly; 2) detail moulded integral with fin; 3) separate plastic bombs; 4) two-part, hollow plastic wing-fuselage assembly; 5) clear plastic canopy, pilot and seat; 6) locations of decals incised in plastic surfaces; 7) complete gear leg assemblies, wheels, wheel well doors, etc.; 8) receptacle for pedestal mount (included in kit); 9) authentic decal insignia; 10) color decal trim, wing walks, etc. Other scale models in plastic by Hawk include the Republic Thunderstreak and Thunderjet, the British Swift, Corsair F4U-1D, Convair XF-92A, Grumman Panther, North American F51H Mustag Mustang, plus others. A triangular box is used as package.

SCI'S "STUNT-MASTER"



■ "Sci" here stands for Scientific Model Airplane Co. "Stunt Master" is the name of its latest U-control flying model for any of the small-bore gas engines. Wingspan is 18 inches. Box contains an "unconditional guarantee" that model must fly or your money will be refunded. Of special interest are 1) .035-.099 cu. in. displ. engines recommended; 2) die-cut plywood firewall grooved for gear struts; 3) celluloid windshield; 4) die-cut balsa tail group; 5) all parts supplied for "U-control" system; 6) formed steel wire gear, wooden wheels; 7) shaped, hollowed balsa fuselage, ready for sanding; 8) color decal decorations and insignia; 9) pre-shaped, one-piece balsa wing; 10) die-cut balsa "fixed" flap. Scientific has introduced a number of successful planes for powering with the smaller engines. This one is right perky looking.

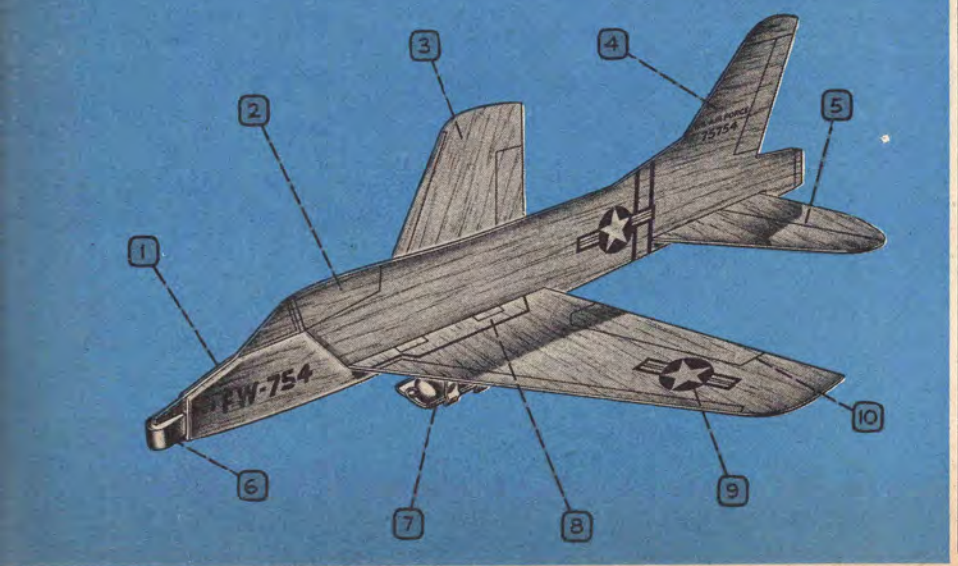
BERKELEY'S "170"



■ Unusually large for flying scale models is Berkeley's Cessna "170" which lends itself especially well to radio control. Designed by Henry Struck, former national modelplane champion, the craft was first shown at last year's Mirror Model Flying Fair. Noteworthy points: 1) .15-.35 cu. in. displ. engines recommended; 2) die-cut plywood formers, celluloid windshield for cabin; 3) removable wing, shock-mounted struts; 4) all ribs die-cut, edges shaped, spars, sheets cut to dimension; 5) cowl blocks cut to dimension; 6) plywood formers, reinforcements supplied; 7) formed dural gear legs; 8) installation data for radio-control—also information for free-flight and PAA load; 9) balsa formers, all strips cut to dimension; 10) die-cut balsa edges and ribs for tail group. This is an absorbing project for any fan.

■ Companion model to American Telasco's Convair F-102 scale profile featured earlier as Blue Ribbon kit, this Super Sabre jet F-100 also is die-cut and ready for gluing. Power plans and fuel are included. Main features include 1) die-cut balsa fuselage doublers; 2) profile, die-cut balsa fuselage; 3) die-cut balsa wing panels; 4) fin, rudder formed integral with fuselage; 5) die-cut one-piece stabilizer; 6) formed rubber nose weight and bumper; 7) complete Jetex #35 engine with mounting bracket, fuses, fuel pellets; 8) interlocking wing panel assembly; 9) color decal insignia; 10) color-printed control surface markings, numerals, etc. A generous loop of rubber and a shooting stick is provided for catapult type flying. For maximum performance the flyer is advised to round off all surface edges.

AM. TELASCO'S "F-100"



NOW VERTICAL TAKE-OFF
Steep-angle climb or level flight with this spectacular New, Different Model Engine!
TURB-O-PROP
USES JETEX FUEL
No torque. Super-powered jet-like thrust. Very light. New thrills with any model plane!
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BUILD FLY YOUR OWN AIRPLANE
(Flying Flea)
This airplane cannot spin or stall, it is the safest, most original airplane to fly.
Specifications: Wingspan 18 ft. Take-off 150 feet. Cruising speed 85 mph. Engine 45 to 65 HP. Total weight 520 lbs. Wood construction, fabric covered.
Latest construction blueprints, instruction sheets and photos $8.50
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MAC 3 AES RECEIVER: Parts Available, Lowest Prices
NEW! Babcock Super Compound Escapement ..... $ 7.95
NEW! GYRO 4 Position Joystick Switch 2.95
NEW! 14 Ohm ACTUATOR COILS: 2 for ..... .65
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MIGHTY MIDGET Electric Motor with gear 2.75

TRANSMITTER, RECEIVER & ESCAPEMENT including Tubes & Relay. No License Required.

A Powerful 4.8 Watt Transmitter & Super-sensitive Receiver for 27¼ Mc. Radio Control. NO KNOWLEDGE OF RADIO NEEDED TO GET WORKING. FREE with above Kits BERKELEY ESCAPEMENT. (Not a Kit). **$9.88**

New Model ZT Deluxe Transmitter



Operates any 27¼ Mc REGULAR or AUDIOTONE (WAG, Babcock) Receiver. The Only high powered Transmitter offering both Standard & Audiotone Modulation—your choice by a flick of the switch! Incorporates all features of the famous MAC II Model X1 with 5 Watt power! Housed in beautiful 12"x7"x6" case with built-in storage Battery, Vibrator Supply. Gyro-Magic Tuning Indicator, Meter, Antenna with Ground Plane Booster, Battery Charger, Keying line, Dummy Antenna Load, tubes, crystal, etc. Operates anywhere! Guaranteed. only **$48.50**

COMBINATION R/C TEST METER. Checks Field Strength: 27¼ Mc. resistance; Volts 0-10, 50, 250. Milliamps 0-5, 50 (Micro A Movement) Molded Case 3x4x1½ $14.95
GYRO 6 REED RELAY—permits 6 controls—with diagram.... $14.95
GYRO 6 TONE MODULATOR—converts any transmitter for 6 separate controls, complete kit 8.45

STORAGE BATTERIES

BB54-A. 2 Volt, 3"x4"x5½"—27 Amp. Hours 2.75
NT6. Mini., 6 Volt, 2½"x1¾"x3½" 2.45
2-6 Volt BATTERY CHARGER wired & tested....$6.95; kit 4.95
BATTERY CHARGER KIT. 2-6 Volts 4.95
CHARGER FOR DRY BTRIES. Use 1 set of A & B's all season! Recharges all 1½ to 90 Volts 6.50
VIBRATORS, 6 Volt $1.35; 2 Volt Synchronous 1.00
METER JACK, open circuit ..... .30
Closed circuit .....35c; PLUG for jacks ..... .35
MINI PLUG & JACK, for metering, etc. ..... .15
New Submini. CLOSED CIRCUIT JACK & PLUG ..... .25
Bakelite BOARDS for Receivers, 25c; RF CHOKE ..... .20
SWITCHES: Toggle SPST .....30c; Slide Switch ..... .15
KEYING SWITCH, remote new micro "click" type ..... .55
POTENTIOMETER, mini 10,000 or 25,000 ..... .40
POT., dime size, 10,000-25,000 ohms ..... .35
CONDENSERS, and RESISTORS, most sizes ..... .10
CERAMIC TRIMMERS, 3-30 mmf. or 7-45 mmf. ..... .35
PADDER. For Simple Single or Mini Mac Sets ..... .60
VARIABLE CONDENSER, air type, screwdriver shaft, 100, 125 mmf. .....80c; 15, 25, or 50 mmf. ..... .40
PLATE COIL CTC. adj. iron core ⅜" or ¼" ..... .25
Wound for Lorenz, S. Single, Johnson, Mini Mac ..... .50

NEW TUBES. All Types Available—LOWEST PRICES

LONG LIFE RK-61 Tube in stock for GYRO Kits

XTAL diode	$.75	XFG-1	$3.20	3A5	$1.25
1S4	.90	1V5	1.90	3B4	1.85
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1U4	.90	3Q4	1.10	3V4	1.05
1U5	.90	3D6	.80	Transistor	3.50

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WHAT'S YOUR HOBBY?





"If you are looking for a hobby that is unique and different," says John E. Rollheiser of St. Paul, Minn., "try shrinking heads—using apples, of course. I first became interested in it when I saw the weird creations about a year ago. They are comparatively simple to make. First peel an apple and then roughly carve in the features. No need to spend much time on it as the drying process will actually do the shaping. After the face is roughed in, toothpicks are stuck into the bottom to form a tripod on which the apple will rest while drying. It is then set near a heat source such as hot air ducts of a furnace. After two or three days color is applied to the face. I use diluted food coloring, liquid shoe polish, ink or water color. The head is then left to dry for about three more days. When quite dry firm hair is glued on with rubber cement. Several sources are available for this—such as your pooch, or human hair, obtained from barbershops, as well as fur. I understand that this hobby is quite old and would like to hear from anyone who can enlighten me on its origin and history."

Tell us about your hobby if it is of special interest to mechanically minded young fellows! Send photographs and details on how you got started to "What's Your Hobby," c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. We pay $25 for first photo and $5 for extra photos used. Entries not used will be returned, but we cannot be responsible for submissions.



Under Control

(*Continued from page 71*)

ble. Solution is to install better filter in the high voltage circuit—or use batteries for the pulser, which doesn't take much B power, especially if you work it on 45 V. Another point is that power supplies mentioned above, especially the vibrator sort, have very poor voltage regulation, which again can lead to erratic pulser operation; you can use a voltage regulator tube, but this takes quite a bit of power and would only be practical where you used a large storage battery as the low voltage source. Again, best solution is to use a small 45 V. B battery for pulser.

Commercial News. New R/C items are being stocked by Polk's Model Craft Hobbies (314 5th Ave., New York 1, N. Y.). They will have complete line of the very high-grade ZN pneumatic model wheels; these come in sizes from 2½" to 6" dia., are light weight, have demountable tires—and extra tires will be stocked—and are easily patchable. New 2-tube receiver called the "Tri-Diode" will feature printed-circuit base plate; idling current is only tiny fraction of ma., and tubes are RK61 plus XFY33. Latter is an English sub-min output tube, but many other more familiar output tubes will work almost as well. Will be sold in kit form with comprehensive instructions for $8.95.

Aristo-craft Pocket R/C Tester has DC voltage and current ranges especially selected for R/C users; full scale readings are 3-200 V., and 2-1000 ma. Also has ohms ranges of 100, 1,000 and 10,000; price with test leads and instruction book written especially for R/C user is $14.95. Polk's can supply flat-type 5-prong sub-min sockets for 30c each, and has large supply of American Flyer and Lionel ratchet reverse switches (useful in car and boat R/C systems) for $2.50 each. These work on 6-12 V., are easily rewound for lower V.'s.

Talmco Microvonics (Box 125, Oakland Garden Sta., Flushing, N. Y.) is producing a proportional pulser somewhat similar to the Mach-Mec described in ATH. Will be in 3 x 4 x 5" case which has provision for two D size flashlight cells. Motor is a Wilson and nylon cams are driven by bronze gears. Self-centering control arm will have neutral adjustment, and contacts are adjustable by a screw arrangement.

Acme Model Engineering Co. (8120 7th Ave., Brooklyn 9, N. Y.) announce new battery holders added to their already extensive line. They will have holders to fit 30 V. batteries similar to Eveready #506E and to #513. Present holders that are made for two flashlight cells in the B, C and D sizes will also soon be available in same shape, but with contacts arranged for serious connection; holders for two cells in these sizes, but with separate contacts for each end of each cell still stocked.

Supplement to R/C catalog has been issued by Ace Radio Control (Box 301, Higginsville, Mo.). Contains many new items such as Price relays in three types, Hundley 9085 kc. crystals at $2.75, plus new R/C kits. So many new items are available, that another supplement will be out by the time you read this; send for it—it's free.

Control Research (Box 9, Hampton, Va.) will stock ¾" dia. x ¼" thick alnico V discs for $1 each; CR can still supply ¾ x ⅛" alnico II discs at 35c. They have a quantity of Gov't surplus RK61 tubes, brand new and guaranteed, at $2.35 each; they point out these are the older type of RK61's—not the latest long-life style (which CR also sells, at $3.50). 7-pin plugs to fit 7-pin miniature sockets cost 45c, and CR has new line of sub-min phone plugs and jacks which are "exact scale" copies of the regular phone plugs and jacks but in much reduced size. Plug is 55c, closed circuit jack same price, and open circuit jack is 45c. New catalog listing these and other new products is twice the size of last one—and free, as usual.

Citizen-Ship Radio Corp. (Indianapolis 20, Ind.) now stocking 27.255 mc. crystals in their own distinctive C-R package. Will be sold through hobby dealers for $4.50 each.

Latest version of the Newx escapement is Model 512, to be had from Newx Products (Box 643, Union, N. Y.) or from your local dealer. Same size and weight as their earlier Model 506, this one is intended especially for use with two small cells; on 3 V., current drain is only 170 ma. Either model: $7.95.

Rite-Controller, produced by Rite-Control (Box 37, Williamsburg Sta., Brooklyn 11, N. Y.) has been improved by addition of all-brass worm drive system, giving a speed range of 50-240 rpm. Contacts are now of silver and there is an improved control handle holder. Concern carries a compact proportional actuator weighing 1.4 oz., and drawing about 70 ma. at 3 V. Must be used with light return spring, and is best for small planes; sells for $2.75. They will soon have a low-drain motor-driven servo-actuator featuring very high torque (over 20 in.-oz.) at low current drain. Average current is 75 ma. on 3 V., and unit follows control stick closely; weight is 4 oz. and price $7.95.

Several new plane kits suitable for R/C use announced by Berkeley Model Supplies (West Hempstead, N. Y.) include Custom Privateer amphibious flying boat with 9½' span (kit price, $19.95), 2" scale Cub with 71" span ($8.95 for kit), and super Navion also in 2" scale and with 64" span (12.95). Berkeley is readying "Aerotrol-Tone" deluxe R/C equipment, co-designed by Dr. Walter Good and Joe Dale—price and release date not set as yet. R/Cers may be interested in Berkeley fiberglass and resin kits selling for 1.25 (per yard) and $1.95 respectively. Latter includes full instructions and 8 oz. of resin, plus the needed hardener.

How I Finish

(*Continued from page 41*)

Set in oven for five minutes (200 deg.). Remove, trim edges with tin snips, and smooth with rasp. Brush on another coat and repeat bake; balance and smooth with rasp and wet #240 paper. Wash hands immediately after sanding fiberglass or you'll be "scratching" for days.

If you do most or all of your finishing in a cool area, an infrared lamp will do wonders insofar as speeding up the drying time of cement and dope is concerned. Use a little caution, however, and don't operate it too close because of the heat.

One last note: Super finishes generally go hand in hand with tail-heavy models, and since a U-control plane's flying characteristics are determined to such a great extent by the C.G. location, it is suggested you make certain your U-control scale models balance no further back than 20% of the chord.

GYRO FREE-New Radio Control Catalog

The Most Progressive & Reliable

RADIO CONTROL SUPPLIER

SPECIALS: Ready To Fly! Compl. Gyro X1 Transmitter Lorenz 2 Tube Receiver & Compound Escapement $63.95
NEW! 3 TONE MODULATOR KIT: Works with any Transmitter. Suitable for Tuned Relay or Safford Receiver. Wired & Tested ..... 5.85 / 11.85
SIGMA 4F (8000) Relay, $4.25; 3 for 11.95
LORENZ RECEIVER KIT: Complete with 1AG4 2d stage & RK-61 8.25; with Sigma 4F Relay 13.15
New! 2 CHANNEL RECEIVER KIT: Incl. Diodes, Res., Base, Sockets, Cap, Wound Choke 8.95
McENTEE'S "RADIO CONTROL HANDBOOK" 2.25
METERS: Accurate 2' sq. O-1 Ma 3.65
0-5 Ma. $2.75; 0-3 Ma. $2.95; 0-50 Ma. 2.75
Gyro DIRECTOR TRANSMITTER Kit, with cabinet, crystal, tube, antenna, keying switch 12.45
NEW! LORENZ deluxe TRANSMITTER Kit (AUG. M.A.N.) with tubes, crystal, drilled chassis, wound coils, case, antenna & instructions 16.95
CRYSTALS 27.256MC Peterson 29A $3.95; holder ..... .15
FIELD STRENGTH METER KIT: $1.35; with O-3 Ma. Meter 3.75
Wired & Tested, add 1.00

MOST POWERFUL — LOWEST PRICE



IMMEDIATE DELIVERY. The most POWERFUL (5 Watt) TRANSMITTER ON THE MARKET Famous 2 Tube MAC II circuit, featuring GYRO MAGIC TUNING INDICATOR. Completely wired & tested, includes 9½ ft. sectional Antenna, remote "clicker" Keying Switch, Meter, Ground Plane Booster. Beautiful Cabinet: 12" x 7" x 6". Available in 3 Models—Money Back Guarantee!
GYRO XI TRANSMITTER, as described with built-in 2 volt Storage Battery, 2 Volt Vibrator Supply, Battery Charger. Nothing else to buy. Guaranteed—Complete $39.50
GYRO X2 TRANSMITTER, as described with built-in dynamotor for operation from 6 Volt Auto battery. GUARANTEED—Complete (less battery) 33.95
GYRO X3 TRANSMITTER, as described, but for dry battery operation, using 1-tube GUARANTEED—(less batteries) 23.95

MODEL X, MAC II, 2-tube TRANSMITTER UNIT, as used in Gyro transmitters. Only 3"x4"x1½", wire and tested. Complete with Tubes & Crystal. Install in your case..... 15.50
Above unit in kit form, with tubes and crystal 10.95
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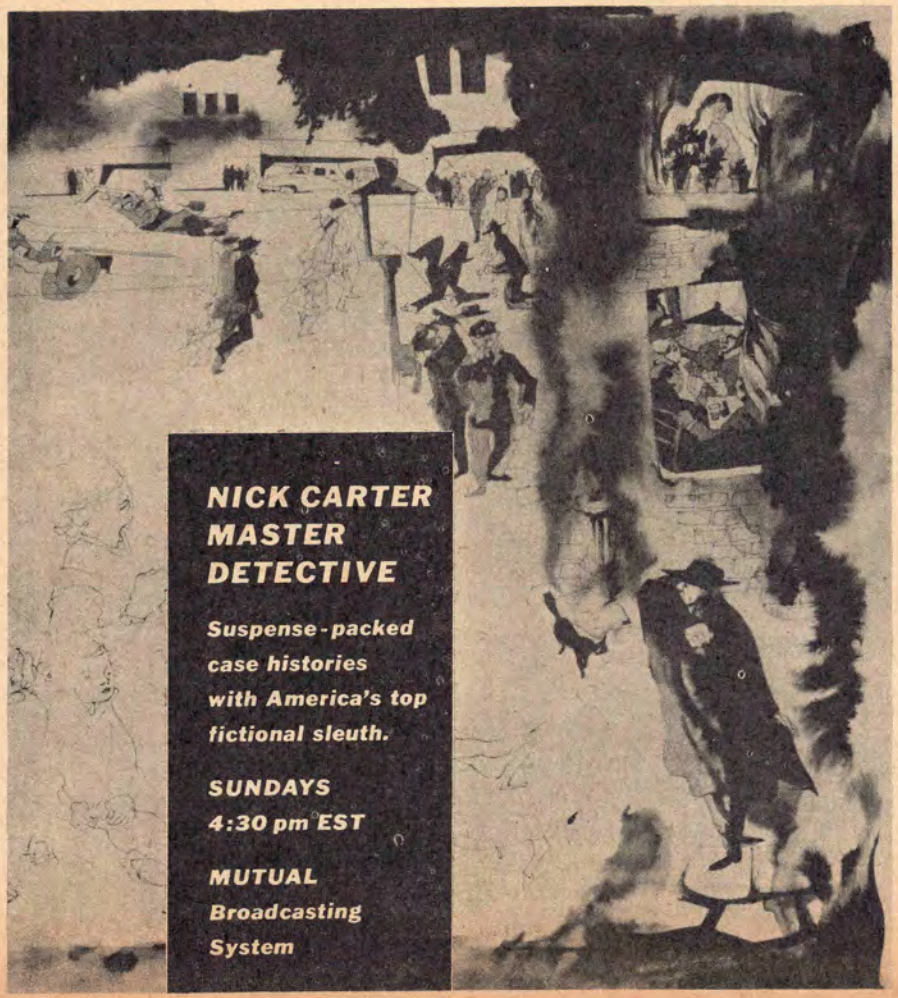
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Streamlined hard-top has doors that curve up into roof, making it easier to enter and leave. Note how bumper circles car completely.



American-designed, this new model was handcrafted in Italy. Chrome-plated wire wheels add style, help cool brakes and tires.



Hobby Club Emblems



Gerry's Model Club of Winnipeg, Canada, was organized by War II veteran-hobby shop proprietor George Walker. It all started when some of his young purchasers asked for help and guidance in building their models. Soon Walker had a regular class going in the back of his shop and eventually the club was formed. At present the organization has close to 20 members ranging from 8 to 14 years of age, all busy building, flying or sailing.

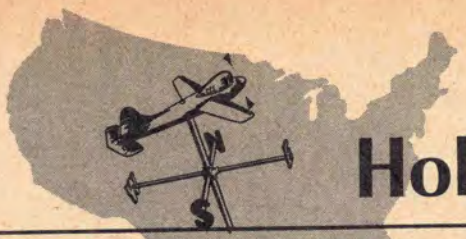


Most members of the Wichihawks Model Airplane Club of Wichita, Kan., are employees of Boeing Airplane Co., builders of the B-47 jet bomber. They travel extensively to contests and events throughout the country, and their emblem silk-screened on "T" shirts has become widely known. The insignia is also displayed on their planes, tool boxes and car windshields. Regular meetings are held at Wichita's East side Y.M.C.A.



The above insignia was designed for Oregon Aeromodelers Association of Salem, Ore., by the well known model expert Earl L. Cayton. The organization was formed in 1947 and consists of Oregon model airplane clubs which banded together to coordinate and promote activities. Present officers are: president, Ken Thorstad; vice-president, Robert Kern; secretary and treasurer, John Riley. The emblem, model plane on background of cloud, is significant of fine flying conditions in state.

Send your club insignia—with info on your group. ATH will pay $10 for each emblem and report used here. Type data and send only printed emblems—no sketches.



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Hobby Model World

(*Continued from page* 80)

ing session they work with the students, teaching them as much as possible. Each team is trying to come up with the best group of flyers.

Georgia Team Racing. The Atlanta Team Race Club is getting to be a pretty well known club, judging from some of the overseas mail received.

Just recently, the club received two letters from modelers in England; one from a fellow down in Brazil; and another from a flyer in New Zealand. The latter had in some way acquired a Torp 29 from the U.S. and had written for some plans for a "Redskin" team racer. In order to help this lad a bit more, all members contributed enough cash to send a "Redskin" kit.

Along with promoting the "good neighbor policy", the Atlanta Team Race Club is also trying to promote an organization of all team race groups throughout this part of the country with the idea in mind that possibly once or twice a month one of these groups would stage a team race and all of the others attend. The winners of these circuit meets would receive a standard number of points which would put them in line for a high point trophy to be awarded at the end of the season.

Any group of team race boys interested in this plan, write to Tom Aldred, 1340 Ormewood Ave. S.E., Atlanta, Ga. They would be happy to give you any information desired.

—Robert W. Elliott

WESTERN ROUND-UP

Fracas in Phoenix. Phoenix this year turned out much better than the last two years; the weather man did a little better and past contest experience showed in a better-run contest. Threatening weather sent a few guys home early and kept some away, but for the tried and true nothing could deter them. Don Alberts and the gang from Albuquerque ran into a blinding snowstorm so they turned and detoured around the storm, but made it in plenty of time.

Memories of this meet will always include the look of amazement on the motel manager's face when Dean Kenny asked for rooms for eighteen. That evening it seemed like all the R/C boys in the country at one time or another were in our room—that is, until Mark Tackett decided to add one more coat of butyrate to his wings. He uses oil of wintergreen for a plasticizer, as if the butyrate wasn't enough!

We even had an oscilloscope going most of the night chasing an elusive second channel signal that seemed to be getting lost all the time. Other memories include the number of monoline speed jobs distinguished by high aspect wings (required to get the torque unit in); the fact that this one line has less drag is now an accepted fact, though the added effort one exerts to keep the ship straight and level is amazing.

The first official flight of the day saw Jim Summerset clocking the laps in 11.6 seconds with a jet job, which incidentally stood up for this meet; then Jack Lee's two Nordics, one of which was consistently doing 2½ plus till a thermal tied in for an O.O.S. and no ship. There was Mark Tackett's O.O.S., directly overhead in just barely six minutes, Don Albert's high time of the day 17:41 with a rubber job, 2nd high time a hand-launched glider.

Most amazing also was the trouble the R/C boys had, several ships sticking in down-elevator for a big whomp into the deck; others more fortunate stuck in up-elevator. Several guys went home with pieces, Dean Kenny winning that one, being kidded about his being first in something or another. Don Yearout who had the feature in "Life" several years ago with his jets, flew a two-channel Half-A. He is now working with



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PUBLICATIONS

AT LAST! A publication devoted to the aircraft homebuilder and enthusiast. Latest news, photos, plans and regulations. Send $.25 sample copy. Experimenter, 3801 S. 56th Street, Milwaukee 14, Wis.

BOOKS

MODEL AERONAUTICS YEARBOOKS still available. 1951-52, 1953 and 1938 re-print. $1.00 each. Model Aeronautic Publications, Box 333, Station D, New York 3, N. Y.

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DECALS—CUSTOM MADE FOR CLUBS, small or large quantities. Details free. Dek-A-Lac Mfg. Co., P.O. Box 232, Keyport, N. J.

MODEL BUILDER CLUBS

RACE CARS—American Miniature Racing Car Association. For membership information send 10c to Carl Noward, 1384 Berdan Avenue, Toledo 12, Ohio.

POWERED BOATING—International Model Power Boat Association. Mrs. Margaret Baxmann, 2991 Garland Avenue, Detroit 14, Michigan. Send 10c for membership data.

AEROMODELING—In U.S. official governing body is the Academy of Model Aeronautics, 1025 Conn. Ave. N.W., Washington 6, D.C. Send 10c for information on joining.

MODEL RAILROADING—National Model Railroad Association, c/o Robert Bast, Box 1138, Canton, Ohio. Include 10c with request for membership details.

CANADIAN—AIR—MODELING—Model Aeronautics Association of Canada, 2109 Bleury Street, Montreal, Que. Send 10c for details.

ECO in Albuquerque. Dean was flying a new ship with 3-motor speeds. The new ship sure looks good, very functional, stable, built strong and a real neat piece of work.

One most unfortunate accident happened in the team race event, which incidentally had more entries than we expected. It seems a ship had landed, the pit "crew" had asked for and received permission to retrieve, so he started in the circle—at the same time another engine conked. In attempting to land, this second ship hit the other crew man in the side of the face, the spinner piercing his cheek and causing multiple lacerations. Whether he ever saw the ship which hit him is doubtful, but outside of the regular prop nips, this was the only accident—it was too bad it had to happen.

At the end of the meet the following had showed their heels to everyone and stepped forward and received some real slick hardware: James Scarborough won both Half-A and A open, Ted White won B, while Bill Ellison won C. In Half-A Jr. Don Bartick won first and Martin Wolfe ABC Jr., topping all open times. Don Peden won combat and tied for first in stunt with Frank Townsend Jr., who also won the team race event. In Stunt Jr. Dennis Alford continued his winning ways. Ralph Newbill won Control Line Scale with his best finished model. In Speed A-B Bob Dunham was tops, while Jim Summerset won C and Jet combined.

In Rubber Don Alberts was first and in hand launched, to a new record, Dick Everett. In towline it was James Taylor. H.L. Jr. was won by Bobby Patchin, Half-A scale by Russ Ryan for the second year in a row. In R/C Dean Kenny won Multi-Channel while Hal Dobkins won Rudder Only. Second and third-place winners also got trophies.

New Civvy Boy Kit. Paul's new Civvy Boy .61 is scheduled to come out in kit form on April 1, Ken Hi is putting it out and it is expected to cost $7.50. They have done a wonderful job on the kit; the complete fuselage can be assembled without glue. The points which we personally have always thought the Civvys to be weak in have all been beefed up. It was a coincidence, but the rear of the fuse is now a little larger and the dihedral increased. According to Paul, he is now ready to challenge Denny to a climbing contest—this we have got to see.

There is a very promising newcomer presently making a showing out here in the west. His name is Bob Munson, who has relatively little experience but is the type of guy who is quiet and unassuming, eats up and applies intelligently any and all advice he asks for and gets. Bob loves rubber jobs and at the present time he has a limited class model which averages close to 2½ minutes and a self-styled Wakefield which will probably push the 3 min. max. every flight. He has won the last three contests he has entered and *if* he sticks to it, will win a lot more. His construction is thorough and neat, very painstaking, he goes for no frills—everything does a job.

—DICK EVERETT

More than 4 out of 5 ATH Readers own and use cameras!

So let's have more photographs of you and your models—remember, we pay $10 for photos used from readers

Air Trails HOBBIES For Young Men

JUNE, 1955

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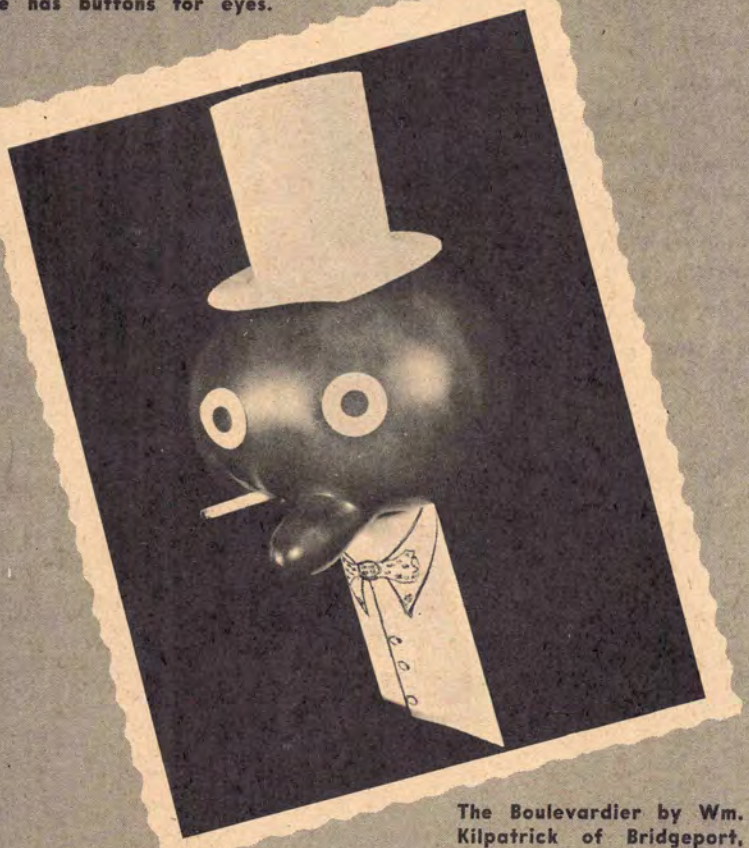
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While every precaution is taken to insure accuracy we cannot guarantee against the possibility of an occasional change or omission in the preparation of this June 1955 index.

Trick Pix



Modern knight and the monster by Dean Wiseman of Montrose, Colo. Body is coconut; ears and tongue, leather; teeth, toothpicks; he has buttons for eyes.



The Boulevardier by Wm. Kilpatrick of Bridgeport, Conn. Head: tomato. Eyes: loose-leaf reinforcements. The rest is cardboard.

TRICK-PIX COMPETITION ENDS • OTHER PHOTO AWARDS CONTINUE

With these two winners, the Trick-Pix competition draws to a close. Its success encouraged the editors to institute the two monthly photo presentations "Hobbies-In-Action" and "Most Realistic Model." Trick-Pix contestants are invited to try their hand at entries in these two events. Each month the outstanding photograph in each category is printed and an award of $25 goes to each winner. See "Hobby Model World" department.

GEM RC RELAY

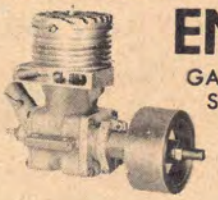


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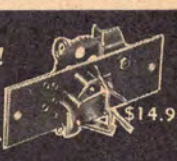
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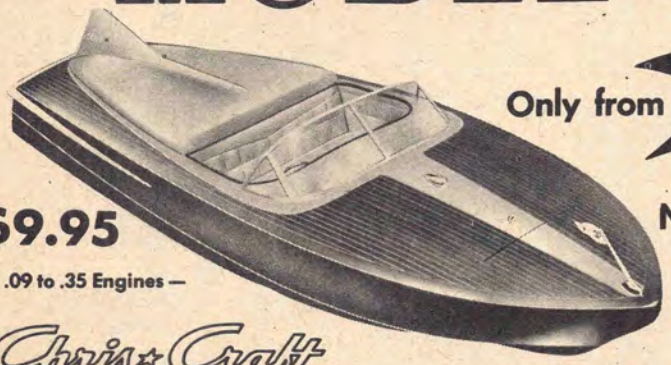
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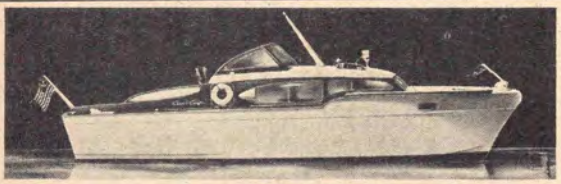
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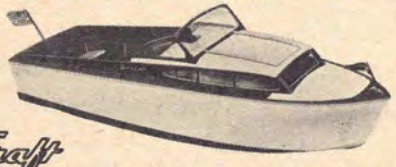
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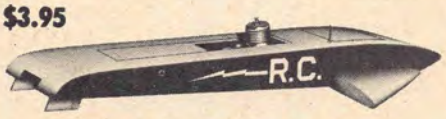


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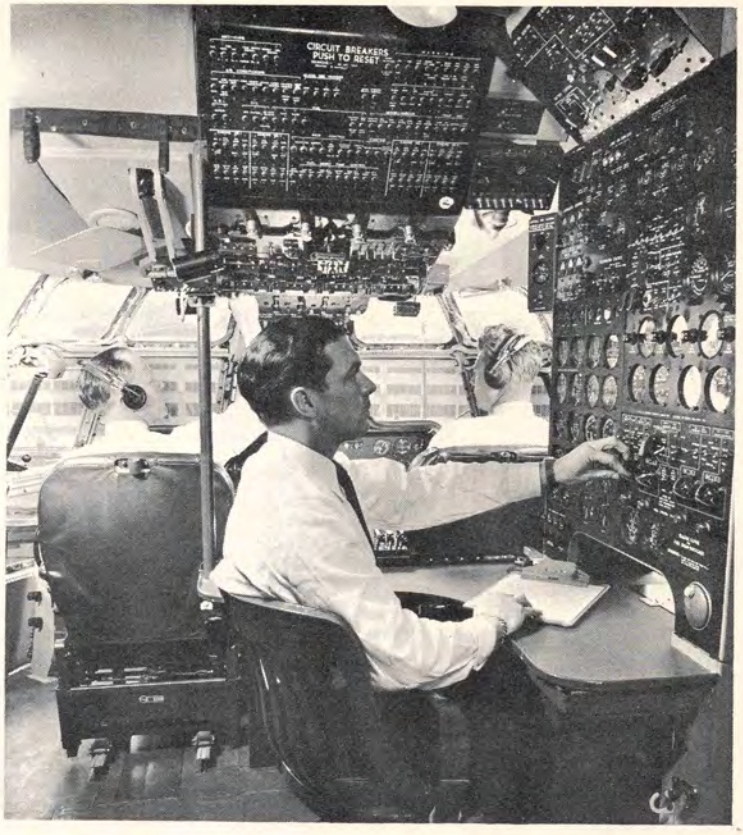
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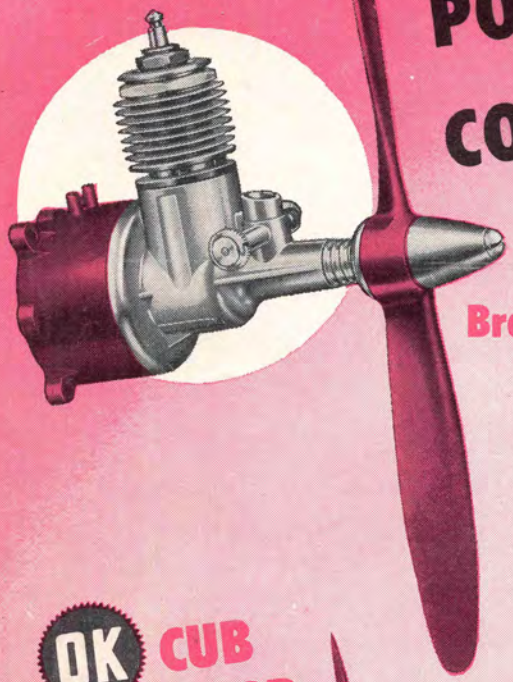
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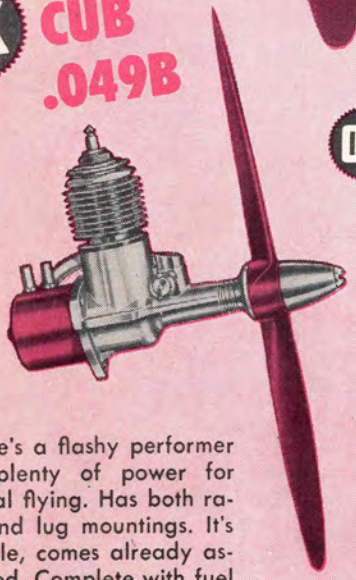


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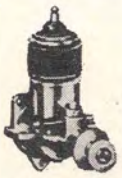
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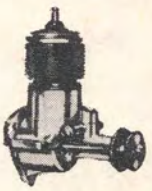
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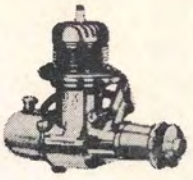
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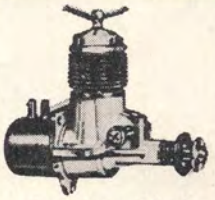
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